

**JACOBS**

**TES IV**



**JACOBS ENGINEERING GROUP INC.  
ENVIRONMENTAL SYSTEMS DIVISION**

**IN ASSOCIATION WITH:  
TETRA TECH  
METCALF & EDDY  
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KELLOGG CORPORATION  
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DEVELOPMENT PLANNING AND RESEARCH ASSOCIATES**



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REGION VII

TECHNICAL ENFORCEMENT SUPPORT CONTRACT, TES IV

WORK ASSIGNMENT NO. R07001  
JACOBS PROJECT NO. 05-B833-00

CONTRACT NO. 68-01-7351

DRAFT  
RCRA FACILITY ASSESSMENT  
SITE SAMPLING PLAN

FOR

SHELLER GLOBE CORPORATION -  
KEOKUK DIVISION  
KEOKUK, IOWA

PREPARED

BY

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SHELLER GLOBE CORPORATION - KEOKUK DIVISION  
KEOKUK, IOWA  
SITE SAMPLING PLAN

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**DRAFT SAMPLING PLAN  
SHELLER-GLOBE KEOKUK DIVISION  
SAMPLING VISIT**

**WORK ASSIGNMENT NO. R07001  
JACOBS PROJECT NO. 05-B833-00**

## **1.0 INTRODUCTION**

Jacobs Engineering Group Inc. (Jacobs) under the Technical Enforcement Support (TES IV) Contract, Work Assignment No. R07001, Jacobs Project No. 833, was tasked to conduct a RCRA Facility Assessment (RFA) at the Sheller-Globe facility in Keokuk, Iowa. The purpose of the RFA is to identify and document releases and identify potential release(s) from Solid Waste Management Units (SWMUs) that may require further investigation. This report is the sampling plan for the Sampling Visit (SV). Both the Preliminary Review (PR) and a Visual Site Inspection (VSI) have been conducted by Jacobs. The VSI was conducted June 2, 1988. A draft Preliminary Assessment (PA) report was completed from the results of the PR and VSI of the RFA (EPA, 1988).

The purpose of the SV is to obtain information regarding releases from SWMUs identified during the PR and the VSI through the collection and analysis of new sampling data.

### **1.1 Facility Description**

The Sheller Globe Corporation-Keokuk Division facility is located at 3200 Main Street, Keokuk, Iowa (Latitude 40°24'22"N, Longitude 91°24'45"W). The legal description of the facility's property is as follows: "A 44.480 acre tract fronting 1312.69 ft. on the southwest side of Main Street, located in the N1/2, Section 23,

T65N, R5W, 5th P.M., City of Keokuk, Lee County, Iowa" (EPA, 1988). The facility is bordered to the north by an unnamed lake, within an agricultural/residential area; to the east by various commercial, recreational facilities, and residences; to the south by residences; and to the west by a relatively unpopulated area through which Soap Creek flows south toward the Mississippi River (Figure 1).

The Sheller-Globe Keokuk facility has been in the rubber product manufacturing business since 1904. Finished products include polyurethane foam crash pads (dashboards), instrument panels, door panels, and rubber weatherstripping for the automotive industry. The Sheller-Globe operation employs several injection molding processes for crash pad and padded instrument panel production. Rubber weatherstripping is also manufactured at the Keokuk facility. A synthetic rubber is formulated and extruded using carbon black and process oil (Banbury mixing process).

Surface topography at the Sheller-Globe site ranges from an elevation of 660 feet m.s.l. (mean sea level) on the east side of the property to a low of 560 feet m.s.l. on the west side of the property along the Soap Creek drainage. Physical features in the vicinity of the site include an unnamed lake 500 feet north of the facility. Flat, tabled uplands lie to the south and east of the facility. An unnamed tributary to Soap Creek receives effluent discharged (under NPDES permit limitations) from the Sheller-Globe facility cooling lake. The tributary flows into Soap Creek 300 feet west of the cooling lake. Soap Creek ultimately discharges to the Mississippi River, south of Lock and Dam 19 (EPA, 1988).



## 1.2 Solid Waste Management Units

Sheller-Globe operates as an interim status treatment/storage/disposal (TSD) facility. Numerous solid waste management units (SWMUs) and areas of concern have been identified at the site during both the PR and VSI phases of the RFA. These SWMUs and areas of concern are listed in Table 1 and are presented on Figure 2. The SWMUs identified include: 1) a drum staging area, 2) a hazardous waste container storage area, 3) the cooling lake, and 4) an onsite landfill.

Based on results of the Preliminary Assessment (PA) the drum staging area (Unit 1) did not appear to have released contaminants to the environment at the time of or prior to the VSI. The likelihood of future releases did not appear high.

The hazardous waste container storage area (Unit 2) has been cited for spills during past RCRA inspections. The area is paved, but there are no provisions for runoff/runoff control. It is therefore possible that a release has occurred.

Sheller-Globe was cited in June 1987 for the discharge of hazardous wastewaters (D006 and D008) to an unpermitted surface impoundment (Unit 3, the cooling lake). The lake received this hazardous discharge intermittently over a period of several years.

The onsite landfill (Unit 4) was the result of a one-time burial of drums and is an inactive SWMU. No formal closure of this landfill has occurred. The presence of buried drums at the Sheller-Globe facility constitutes an unknown, but likely, release of hazardous constituents to the subsurface environment. It was recommended in the Preliminary Assessment Report that the facility initiate an investigation (e.g., historical and/or geophysical) to locate the buried drum trench, and determine whether or not a release has occurred.

TABLE 1

SUMMARY OF STATUS ON SOLID WASTE MANAGEMENT UNITS  
SHELLER-GLOBE KEOKUK, IOWA

<u>Waste Management Unit/Area</u>	<u>Operational Status</u>	<u>RCRA Regulated</u>	<u>Release Potential (High, Medium, Low)</u>	<u>Jacobs Recommendations For Further Action</u>
1 Drum Staging Area	unknown to present	Yes	Low	Continued oversight of operation by EPA
2 Hazardous Waste Container Storage Facility	1986 to present	Yes	Medium	Sampling of surface soils down gradient of the facility
3 Cooling Lake	1984 to 1987	No	Low	Sampling to determine if wastes have entered the pond and to characterize influent further
4 Onsite Landfill	between 1979 and 1975 (a one-time burial)	No	High	Facility should initiate an investiga- tion to locate buried drums and characterize any/all releases.



FIGURE 2

# RFA Sampling Locations Jacobs Engineering Group

## LEGEND

### SWMU's

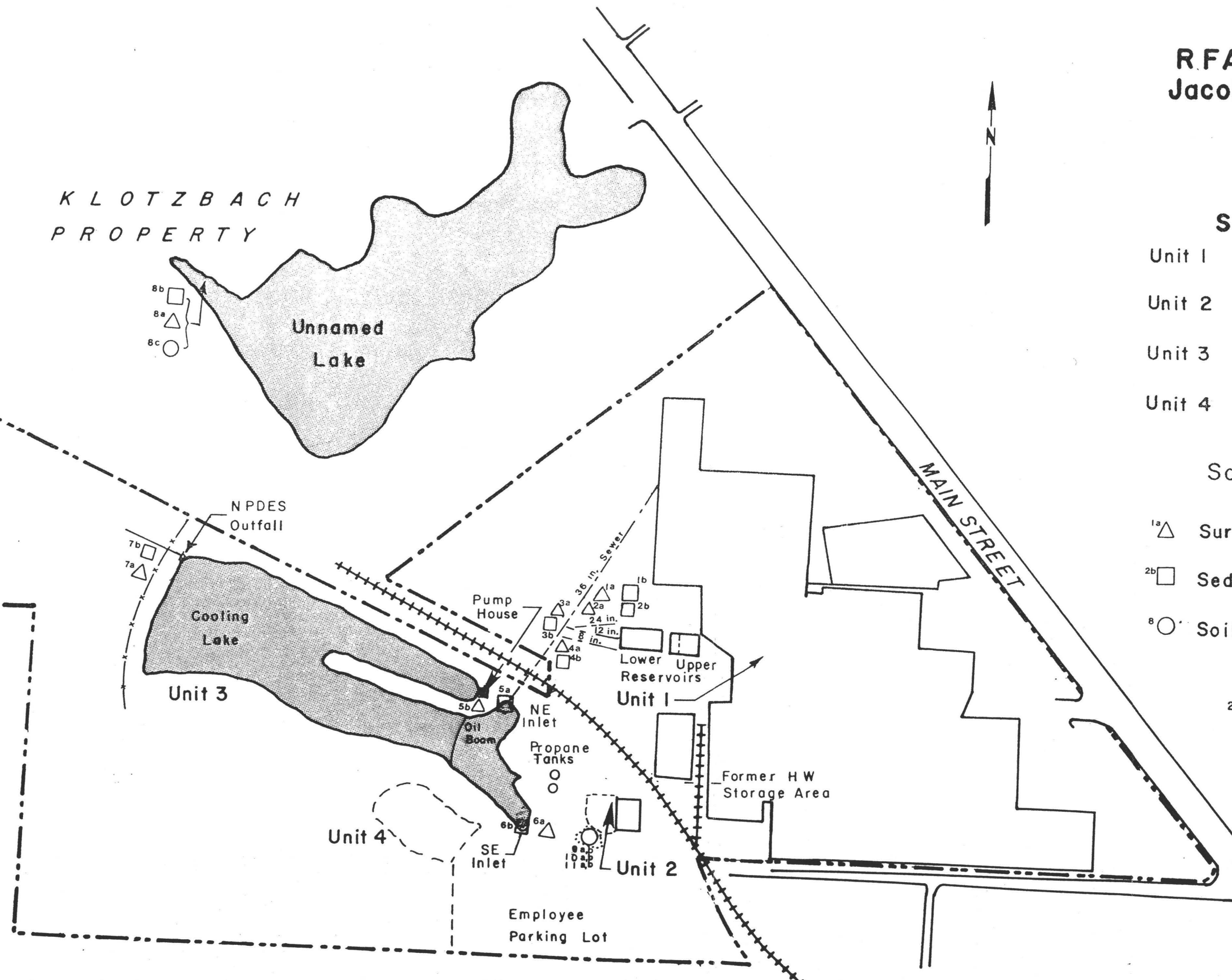
- Unit 1 Drum Staging Area
- Unit 2 HW Storage Area
- Unit 3 Cooling Lake
- Unit 4 Onsite Landfill

### Sample Locations

- <sup>1a</sup>△ Surface Water Sample and No.
- <sup>2b</sup>□ Sediment Sample and No.
- <sup>8</sup>○ Soil Sample and No.

200 100 0 200 ft.

SCALE





The SWMUs of concern during the sampling visit are the hazardous waste container storage area and the cooling lake. The SWMUs are discussed in further detail in the Preliminary Assessment Report for the Sheller Globe-Keokuk Facility (EPA, 1988).

## 2.0 SAMPLING OBJECTIVES

The primary objectives of the Sampling Visit (SV) are to identify releases from SWMUs at the facility through sampling, to fill in any data gaps that remain after the preliminary assessment, and to identify the need for any further investigation of existing or potential releases at the facility. This sampling plan will focus on sampling-related information pertaining to the aforementioned SWMUs which were suspected or known to have handled hazardous wastes, or for which complete information is not available. Sampling will be conducted at these SWMUs to determine if they have released hazardous constituents or if they have a potential for release. The secondary objective of the sampling event is to determine the potential hazard which the SWMU(s) pose to human health and the environment.

Of the designated SWMUs only two were recommended for further sampling (EPA, 1988). The cooling lake may be considered a surface impoundment (a RCRA-regulated unit) pending further discussions between the U.S. EPA and the facility. The cooling lake is an active area receiving process wastewaters and surface runoff. Efforts during the SV will therefore focus on sampling to characterize influent wastewaters to the lake from process areas.

Due to past evidence of spills, leaking containers, and other RCRA violations, the hazardous waste storage area and surficial soils along rills, gullies, and other drainage pathways leading from the hazardous waste storage area should be sampled for evidence of past releases of hazardous constituents to the environment.

Jacobs anticipates that Sheller-Globe facility personnel will wish to be apprised of each activity associated with the SV. We plan to work with facility officials in obtaining and verifying information required to complete the RFA. Receipts for samples collected at the Sheller-Globe facility and a short debriefing will be provided to facility officials at the end of the SV.

### 3.0 SITE SAMPLING APPROACH

#### 3.1 Summary of Preliminary Assessment Recommendations

The cooling lake and hazardous waste container storage area are the SWMUs which will be examined for past and continuing releases as part of the SV for the Sheller-Globe facility. The approximate locations of SWMUs identified in the PA are shown on Figure 2. The PA provided the following conclusions as a guidance for the SV (EPA, 1988):

1. The drum staging area within the manufacturing facility did not appear to have released contaminants to the environment at the time of the VSI. The staging area is on a concrete floor that had no apparent cracks, seams, or other visible avenues by which contaminants may be introduced to the environment.
2. The hazardous waste storage area did not appear to have released contaminants to the environment at the time of the VSI. However past releases, spills, unsound containers, etc. have been previously noted by RCRA inspectors. The release of hazardous materials within the storage area may be contained because the area is paved. However, the area does not have adequate runoff controls. Therefore, it is likely that this SWMU has released contaminants to the environment in the past.
3. Approximately 2400 gallons of D006 wastes were discharged to the cooling lake over a two to three year period. The documented release of RCRA hazardous wastes constitutes a release to a non-permitted surface impoundment. As such, the cooling lake is being investigated as a SWMU.
4. The onsite landfill poses an unknown threat to the environment. As the disposal of drummed wastes in the unpermitted landfill occurred prior to October of 1980, it was recommended the facility be required to investigate whether or not a release has occurred or, in the face of a potential release, initiate corrective actions under RCRA. CERCLA Sections 104(e) and 106 authority may be applicable to invoke facility participation in an investigation and/or remedial action.

### 3.2 Sampling Locations

Eleven sampling locations were chosen based on data collected during the PR, VSI, and conversations with facility representatives (EPA, 1988). The following discussion describes each sampling location, the rationale for choosing each location, and the types of samples to be obtained. Figure 2 presents the location of samples No. 1 through 11 in relation to solid waste management units and other areas of concern. Table 2 presents a summary of the sampling locations and matrices. The procedures for obtaining samples are outlined in Section 3.3. Tables 3, 4A, 4B, and 4C list the recommended analytical parameters for each of the samples collected by Jacobs. Table 5 summarizes sample container, preservation, and holding time requirements.. All samples collected will be analyzed by the Iowa Hygienic Laboratory under contract to the U.S. EPA (EPA, 1987).

All sampling procedures, documentation, and recordkeeping requirements will strictly adhere to the Quality Assurance Project Plan (QAPjP) for performing RFAs in Region VII (EPA, 1987). In addition, where appropriate, test methods and sampling techniques will be followed as outlined in EPA Publication SW-846, "Test Methods for Evaluating Solid Waste Physical/Chemical Methods" (EPA, 1986).

The Region VII Analytical Services Request form and the Sample Containers Request are presented as Attachments A and B, respectively.

TABLE 2  
SUMMARY OF SAMPLING LOCATIONS

SHELLER-GLOBE KEOKUK DIVISION  
KEOKUK, IOWA

<u>LOCATION NUMBER</u>	<u>SAMPLE NUMBER</u>	<u>SAMPLE MATRIX</u>	<u>LOCATION DESCRIPTION</u>	<u>SWMU</u>	<u>COMMENTS</u>
1	1A 1B	Water Sediment	36-Inch Sewer Pipe	Cooling Lake	Upgradient Reference
2	2A 2B	Water Sediment	24-Inch Concrete Pipe	Cooling Lake	Process Wastewater
3	3A 3B	Water Sediment	12-Inch Clay Pipe	Cooling Lake	Reservoir Overflow
4	4A 4B	Water Sediment	8-Inch Steam Pipe	Cooling Lake	Boiler Room Drainage
5	5A 5B	Water Sediment	NE Inlet of Cooling Lake	Cooling Lake	Process Wastewater
5(duplicate)	5A(dup) 5B(dup)	Water Sediment	NE Inlet of Cooling Lake	Cooling Lake	Sample Duplicate
6	6A 6B	Water Sediment	SE Inlet of Cooling Lake	Cooling Lake	
7	7A 7B	Water Sediment	Cooling Lake at NPDES Outlet	Cooling Lake	
7	7E	Water	Cooling Lake at NPDES Outlet	Cooling Lake	Equipment Rinsate Blank
8	8A 8B 8C	Water Sediment Soil	Unnamed Lake North of Facility	N/A	Background
9	9A 9B	Soil Soil	HW Container Storage Area	HW Storage Area	Upslope of Drainage Base of Drainage
10	10A 10B	Soil Soil	HW Container Storage Area	HW Storage Area	Upslope of Drainage Base of Drainage

TABLE 2 (CONTINUED)

<u>LOCATION NUMBER</u>	<u>SAMPLE NUMBER</u>	<u>SAMPLE MATRIX</u>	<u>LOCATION DESCRIPTION</u>	<u>SWMU</u>	<u>COMMENTS</u>
11	11A 11B	Soil Soil	HW Container Storage Area	HW Storage Area	Upslope of Drainage Base of Drainage
12	12F	Water	Field Blank		Quality Assurance Sample

Discretionary Samples To Be Determined (2-4 Additional Samples)

---

11 Water

9 Sediment

7 Soil

TABLE 3  
SAMPLING AND ANALYSIS SUMMARY  
SHELLER GLOBE - KECKUK

SAMPLE NUMBER	LOCATION	SAMPLE MATRIX	EPA SAMPLE NUMBER	ANALYTICAL PARAMETERS	PRESERVATIVES	SAMPLE CONTAINERS
1A	36-INCH SEWER PIPE	Water	1	pH, specific conductance (field), oil & grease, TDS, TSS, TOC, TOX, metals, semi-volatile organics, volatile organics	H2SO4 pH<2 for oil & grease HCl pH<2 FOR TOC HNO3 pH<2 for metals Ice to 4oC	1 1-qt glass w/ teflon cap 1 4-oz plastic 3 1-liter plastic 2 40-ml glass 1 8-oz amber 1 80-oz amber
1B	36-INCH SEWER PIPE	Sediment	2	Metals	Ice to 4oC	1 32-oz glass
2A	24-INCH CONCRETE PIPE	Water	3	pH, specific conductance (field), oil & grease, TDS, TSS, TOC, TOX,	H2SO4 pH<2 for oil & grease HNO3 pH<2 for metals Ice to 4oC	1 1-qt glass w/ teflon 3 1-liter plastic
2B	24-INCH CONCRETE PIPE	Sediment	4	Metals	Ice to 4oC	1 32-oz glass
3A	12-INCH CLAY PIPE	Water	5	pH, specific conductance (field), oil & grease, TDS, TSS, metals,	H2SO4 pH<2 for oil & grease HCl pH<2 FOR TOC HNO3 pH<2 for metals Ice to 4oC	1 1-qt glass w/ teflon cap 1 4-oz plastic 3 1-liter plastic 2 40-ml glass 1 8-oz amber 1 80-oz amber
3B	12-INCH CLAY PIPE	Sediment	6	metals, volatile organics, semi-volatile organics	Ice to 4oC	1 8-oz glass 2 40-ml glass 1 32-oz glass
4A	8-INCH STEAM PIPE	Water	7	pH, specific conductance (field), oil & grease, TDS, TSS, metals	H2SO4 pH<2 for oil & grease HNO3 pH<2 for metals Ice to 4oC	1 1-qt glass w/ teflon 3 1-liter plastic
4B	8-INCH STEAM PIPE	Sediment	8	metals	Ice to 4oC	1 32-oz glass
5A	NE INLET OF COOLING LAKE	Water	9	pH, specific conductance (field), oil & grease, TDS, TSS, TOC, TOX,	H2SO4 pH<2 for oil & grease HCl pH<2 FOR TOC HNO3 pH<2 for metals Ice to 4oC	2 1-qt glass w/ teflon cap 2 4-oz plastic 6 1-liter plastic 4 40-ml glass 2 8-oz amber 2 80-oz amber
5Adup			10d	metals, semi-volatile organics, volatile organics		
5B	NE INLET OF COOLING LAKE	Sediment	11	metals, volatile organics, semi-volatile organics	Ice to 4oC	2 8-oz glass 4 40-ml glass 2 32-oz glass
5Bdup			12d			
6A	SE INLET OF COOLING LAKE	Water	13	pH, specific conductance (field), oil & grease, TDS, TSS, TOC, TOX, metals, semi-volatile organics, volatile organics	H2SO4 pH<2 for oil & grease HCl pH<2 FOR TOC HNO3 pH<2 for metals Ice to 4oC	1 1-qt glass w/ teflon cap 1 4-oz plastic 3 1-liter plastic 2 40-ml glass

FILE \_\_\_\_\_  
SAMPLING AND ANALYSIS SUMMARY  
SHELLER GLOBE - KEOKUK

SAMPLE NUMBER	LOCATION	SAMPLE MATRIX	EPA SAMPLE NUMBER	ANALYTICAL PARAMETERS	PRESERVATIVES	SAMPLE CONTAINERS
						1 8-oz amber 1 80-oz amber
6B	SE INLET OF COOLING LAKE	Sediment	14	metals, volatile organics, semi-volatile organics	Ice to 4oC	2 8-oz glass 2 40-ml glass 1 32-oz glass
7A	COOLING LAKE AT NPOES DISCHARGE	Water	15			
7Aequip		Rinse water	16E	pH, specific conductance (field), oil & grease, TDS, TSS, TOC, TOX, metals, semi-volatile organics, volatile organics	H2SO4 < pH2 for oil & grease HCl < pH<2 FOR TOC HNO3 pH<2 for metals Ice to 4oC	2 1-qt glass w/ teflon cap 2 4-oz plastic 6 1-liter plastic 4 40-ml glass 2 8-oz amber 2 80-oz amber
7B	COOLING LAKE AT NPOES DISCHARGE	Sediment	17	metals, volatile organics, semi-volatile organics	Ice to 4oC	4 8-oz glass 4 40-ml glass
7Bequip		Rinse water	18E	metals, volatile organics, semi-volatile organics	HNO3 pH<2 for metals Ice to 4oC	1 80-oz amber 1 1-liter plastic 2 40-ml glass
8A	UNNAMED LAKE	Water	19	pH, specific conductance (field), oil & grease, TDS, TSS, TOC, TOX, metals, semi-volatile organics, volatile organics	H2SO4 < pH2 for oil & grease HCl < pH<2 FOR TOC HNO3 pH<2 for metals Ice to 4oC	1 1-qt glass w/ teflon cap 1 4-oz plastic 3 1-liter plastic 2 40-ml glass 1 8-oz amber 1 80-oz amber
8B	UNNAMED LAKE	Sediment	20	metals, volatile organics, semi-volatile organics	Ice to 4oC	2 8-oz glass 4 40-ml glass 2 32-oz glass
8C		Soil	21			
9A	HW CONTAINER STORAGE AREA	Soil	22	semi-volatile organics	Ice to 4oC	4 40-ml glass 2 8-oz glass
9B		Soil	23	volatile organics,		
10A	HW CONTAINER STORAGE AREA	Soil	24	volatile organics, semi-volatile organics	Ice to 4oC	4 40-ml glass 2 8-oz glass
10B			25			
11A	HW CONTAINER STORAGE AREA	Soil	26	volatile organics, semi-volatile organics	Ice to 4oC	4 40-ml glass 2 8-oz glass
11B			27			
12F	FIELD BLANK	Water	28F	Metals	HNO3 pH<2 for metals	1 1-liter plastic

SHELL GLOBE - KEOKUK  
SAMPLING AND ANALYSIS SUMMARY

SAMPLE NUMBER	LOCATION	SAMPLE MATRIX	EPA SAMPLE NUMBER	ANALYTICAL PARAMETERS	PRESERVATIVES	SAMPLE CONTAINERS
=====						
					Ice to 4°C	
DISCRETIONARY SAMPLES		To be Determined	29-32	pH, specific conductance (field), oil & grease, TDS, TSS, TOC, TOX, metals, semi-volatile organics, volatile organics	H2SO4 <pH2 for oil & grease HCl <pH<2 FOR TOC HNO3 pH<2 for metals Ice to 4°C	4 1-qt glass w/ teflon cap 4 4-oz plastic 4 250-ml amber glass 12 1-liter plastic 8 40-ml glass 20 8-oz amber



TABLE 4A  
RCRA METALS: METHOD 1310 (EPA, 1986)  
EP (EXTRACTION PROCEDURE)

Arsenic	Lead
Barium	Mercury
Cadmium	Selenium
Chromium	Silver

Note: Surface waters(< 0.05% solids) are not subject to the extraction procedure, and are directly analyzed

<u>Media</u>	<u>Container</u>	<u>Preservative</u>	<u>Holding Time</u>
Soil/ Sediment	32 oz glass w/unlined cap	Ice to 4°C	6 months (28 days for Hg)
Water	1 liter Plastic unlined plastic cap	5ml 1:1 HNO <sub>3</sub> /Liter to pH<2 Ice to 4°C	6 Months (28 days for Hg)

TABLE 4B  
HSL VOLATILE ORGANICS

Chloromethane	1,2-dichloropropane
Bromomethane	trans-1,3-dichloropropene
Vinyl Chloride	Trichloroethene
Chloroethane	Dibromochloromethane
Methylene Chloride	1,1,2-trichloroethane
Acetone	Benzene
Carbon Disulfide	Cis-1,3-dichloropropene
1,1-dichloroethene	2-Chloroethyl Vinyl Ether
1,1-dichloroethane	Bromoform
Trans-1,2-dichloroethene	2-Hexanone
Chloroform	4-methyl-2-pentanone
1,1,2-trichloroethane	Chlorobenzene
2-butanone	Tetrachloroethene
1,1,1-trichloroethane	Toluene
Carbon tetrachloride	Ethylbenzene
Vinyl acetate	Styrene
Bromodichloromethane	
1,1,2,2-tetrachloroethane	

<u>Media</u>	<u>Container</u>	<u>Preservative</u>	<u>Holding Time</u>
Soil/sediment	2- 40 ml vials	Ice to 4°C	7 days
Water	2- 40 ml vials	Ice to 4°C No Headspace	7 days

XYLENE  
MEK  
MIBK

TABLE 4C  
HSL SEMI-VOLATILE ORGANICS

n-Nitrosodimethylamine	Acenaphthene
Phenol	2,4-dinitrophenol
Aniline	4-nitrophenol
Bis(2-chloroethyl)ether	dibenzofuran
2-chlorophenol	2,4-dinitrotoluene
1,3-dichlorobenzene	2,6-dinitrotoluene
1,4-dichlorobenzene	Diethylphthalate
Benzyl alcohol	4-chlorophenyl phenyl ether
1,2-dichlorobenzene	Fluorene
2-methylphenol	4-nitroaniline
Bis(2-chloroisopropyl)ether	4,6-dinitro-2-methylphenol
4-Methylphenol	n-Nitrosodiphenylamine
N-nitroso-dipropylamine	4-bromophenyl phenyl ether
Hexachloroethane	Hexachlorobenzene
Nitrobenzene	Pentachlorophenol
Isophorone	Phenanthrene
2-nitrophenol	Anthracene
2,4-dimethylphenol	Di-n-butylphthalate
benzoic acid	Fluoranthene
Bis(2-chloroethoxy)methane	Benzidine
2,4-dichlorophenol	Pyrene
1,2,4-trichlorobenzene	Butyl Benzyl Phthalate
Naphthalene	3,3-dichlorobenzidine
4-chloroaniline	Benzo(a)anthracene
Hexachlorobutadiene	Bis(2-ethylhexyl)phthalate
4-chloro-3-methylphenol (para-chloro-meta-cresol)	Chrysene
2-methylnaphthalene	Di-n-octyl phthalate
Hexachlorocyclopentadiene	Benzo(b)fluoranthene
2,4,6-trichlorophenol	Benzo(k)fluoranthene
2,4,5-trichlorophenol	Benzo(a)pyrene
2-chloranaphthalene	Indeno(1,2,3-cd)pyrene
2-nitroaniline	Dibenz(a,h)anthracene
Dimethyl Phthalate	Benzo(g,h,i)perylene
Acenaphthylene	
3-nitroaniline	

TOLUENE DIISOCYANATE

<u>Media</u>	<u>Container</u>	<u>Preservative</u>	<u>Holding Time</u>
Soil/sediment	8 oz. glass	Ice to 4°C	7 days
Water	80 oz. amber glass	Ice to 4°C	7 days

TABLE 5  
SAMPLE COLLECTION AND PRESERVATION

<u>Media Sample/ Parameter</u>	<u>Preservation</u>	<u>Sample Container</u>	<u>Holding Time</u>
pH(field)	Determine on site	-	6 hrs.
Specific Conductance (field)	Determine on site	-	28 days
Oil and Grease	2 ml H <sub>2</sub> SO <sub>4</sub> /liter Cool, 4°C	32 oz glass bottle w/teflon lined cap	28 days
Total Dissolved Solids (TDS)	Cool, 4°C	1 liter plastic bottle	7 days
Total Suspended Solids (TSS)	Cool, 4°C	1 liter plastic bottle	7 days
Total Organic Carbon (TOC)	2 ml HCl/4 oz Cool, 4°C	4 oz plastic bottle w/cap	28 days
Total Organic Halogen (TOX)	Cool 4°C No Headspace	250 ml amber glass bottle w/tefloncap	7 days
RCRA Metals	See Table 3a		
Volatile Organics	See Table 3b		
Semi-Volatile Organics	See Table 3c		

### 3.2.1 36" Concrete Sewer Pipe

Surface water and sediment samples will be obtained from the outfall of the 36" concrete sewer pipe at the point where the pipe discharges to a surface drainage (Figure 2). This sample will represent the upgradient contributions of stormwater runoff from properties adjacent to the Sheller-Globe facility to the north and east.

Rationale: This sample location was selected to characterize inflow to the cooling lake that does not include facility process wastewaters and provide an upgradient analysis for cooling lake inflows. It is anticipated that one grab sample of surface water (sample number 1A) will be collected near the outfall of the pipe. The second sample (sample number 1B) will be a sediment sample collected in the immediate vicinity of the outfall. Sampling locations may be modified based on field conditions. Any modifications and/or field changes will be documented in the field log book by the Jacobs team leader.

In performing this sampling, Jacobs will perform a detailed inspection of the discharge basin, and will also walk the extent of the drainage from the point where the 36" sewer pipe discharges to the drainage to the point where the drainage enters the cooling lake (northeast inlet).

### 3.2.2 24" Concrete and 12" Clay Process Wastewater Discharge Pipes

Water and sediment samples will be collected from the 24-inch concrete pipe and the 12-inch clay pipe (Figure 2) outfalls (sample numbers 2A, 2B and 3A, 3B, respectively). The 24-inch concrete pipe discharge includes process wastewaters from the mold cleaning and instrument pad operations. In addition, wastewater from the floor drains, roof drains, and rubber extruder area (floor sump) also

flow to this discharge point. As with the 36-inch concrete pipe, wastewater discharges into the ditch and eventually flows to the cooling lake. The 12-inch clay pipe discharges overflow from the lower reservoir, which receives floor drain discharge from the boiler room/compressor areas.

Rationale: As with the previous sample, the purpose of these samples is to characterize facility process wastewater inflows into the cooling lake. Sampling locations may be modified based on field conditions. Any modifications and/or field changes will be documented in the field log book by the Jacobs team leader.

### **3.2.3 8" Steam Discharge Pipe**

Water and sediment samples will be taken from the 8-inch steam pipe at the point of discharge to the surface drainage leading to the cooling lake (Figure 2). The 8-inch steam pipe outfall includes boiler room drainage and excess steam.

Rationale: The purpose of these samples is to characterize facility process wastewater inflows into the cooling lake. Sampling locations may be modified based on field conditions. It is anticipated that one grab sample of surface water (sample number 4A) will be collected near the outfall of the pipe. The second sample (sample number 4B) will be a sediment sample collected in the immediate vicinity of the outfall. Any modifications and/or field changes will be documented in the field log book by the Jacobs team leader.

### **3.2.4 Northeast Inlet**

Water and sediment samples will be collected from the northeast inlet of the cooling lake (Figure 2). The northeast inlet of the cooling lake is the point at which facility process wastewaters from sampling locations described above

(Sections 3.2.2 and 3.2.3) are discharged to the lake. The cooling lake is described in detail in the draft Preliminary Assessment (EPA, 1988).

Rationale: No sediment or water samples have been collected from this lake (EPA, 1988) at the point where process wastewaters enter the lake. Heavy metal contaminants such as cadmium and lead may precipitate from wastewaters or adsorb to sediments near the inlet. Heavy metals may subsequently be leached from the sediments into the groundwater during periods of lower pH (typically spring runoff or heavy precipitation). Contaminated sediments may also be resuspended and discharged into the unnamed creek during storm surges. Sampling performed by Jacobs will attempt to evaluate whether hazardous constituents were discharged to the cooling lake via process wastewater. It is anticipated that one grab sample of surface water (sample number 5A) will be collected from the cooling lake at the NE inlet. The second sample (sample number 5B) will be a sediment sample collected in the immediate vicinity of where the water sample was collected.

### 3.2.5 Southeast Inlet

Water and sediment samples will be obtained from the southeast inlet of the cooling lake. This inlet is the only other source of stormwater and wastewater into the cooling lake. The southeast inlet receives runoff from the employee parking lot as well as floor and roof drain waters (Figure 2).

Rationale: At the time of the VSI the water at this inlet was blue-grey in color. The discoloration was attributed to the presence of mold release wax components used in the manufacture of crash pads and padded instrument panels (EPA, 1988). Since the southeast inlet also contributes process wastewaters to the cooling lake,

it seems prudent to sample this inlet for potential releases of hazardous constituents to the lake. One grab sample of surface water (sample number 6A) will be collected from the cooling lake at the SE inlet. The second sample (sample number 6B) will be a sediment sample collected in the immediate vicinity of where the water sample was collected.

### **3.2.6 NPDES Outfall**

Surface water (sample number 7A) and sediment (sample number 7B) samples will be obtained from the cooling lake at the NPDES outfall.

Rationale: Analytical results of waters and sediments from all incoming sources should be compared with those of the NPDES outfall (the sole outlet for waters from the cooling lake) to see if there are any significant differences and/or whether effluent limitations are being exceeded.

### **3.2.7 Unnamed Lake - Background**

Background samples for surface waters (sample number 8A), sediments (sample number 8B) and soils (sample number 8C) will be taken from the northwest outlet of the unnamed lake on private land adjacent to and north of the Sheller-Globe facility (Figure 2). Access to this sample point and procurement of the samples is contingent on prior approval of the landowner. Procurement of background samples will be tentatively scheduled for the first day of sampling. Information on the history of this lake, the area which drains into it, and any other detail on the lake's depth, water quality, etc. will be gathered in conjunction with the taking of samples. Should access to this sample point be denied, arrangements will be made to obtain comparable background samples from another adjacent property.



### 3.2.8 Hazardous Waste Container Storage Area

Soil samples will be obtained from the downslope drainages that may have potentially transported hazardous constituents released from spills in the hazardous waste container storage area.

Rationale: Although the hazardous waste storage area is paved with concrete and asphalt, liquids generated from spills or runoff from the area are not contained within the SWMU. In the absence of runoff/runoff controls, and based on documented past spills in the container storage area, it is likely that this unit has released contaminants to the environment in the past. Sampling efforts will focus on those areas where runoff pathways are evident (such as rills or gullies). Drainage pathways leading from the hazardous waste storage area shall be sampled for evidence of past releases of hazardous constituents to the environment.

It is anticipated that a total of six surficial soil samples (samples 9A, 9B, 10A, 10B, 11A, 11B) will be collected from the area which receives drainage from the hazardous waste container storage facility, adjacent to the SWMU. Each soil sample will be collected to a maximum depth of six inches .

### 3.2.9 Discretionary Samples

At the request of the EPA Primary Contact two to four discretionary samples may be acquired at points of interest on the Sheller-Globe facility. These samples could be surface waters, sediments, or soils. If any areas not specifically identified in this work plan appear contaminated, a discretionary sample of

opportunity may be obtained. All such samples will be taken at the discretion of the EPA Primary Contact.

Procedures: All procedures for obtaining surface water, sediment, and soil samples, as detailed in this sampling plan, shall be adhered to. Field logbook maintenance, equipment calibration and photographic documentation will follow those procedures outlined in Section 8.0 and 13.0 of the QAPjP (EPA, 1987). The location of each sample will be determined by Brunton compass bearing shots to prominent landmarks identified on the base map (Attachment F).

Analysis: Designation of parameters of analysis for discretionary samples shall be closely coordinated with the EPA Primary Contact. Analysis of the discretionary samples could include all or part of the parameters designated in Table 3.

### 3.3 Sample Collection Procedures

#### 3.3.1 Sediments

Sediment samples will be obtained using a stainless steel scoop or trowel. Samples will be collected to a depth of two inches. If the sampling point is submerged such that grab samples cannot be easily obtained, an Eckman dredge (or equivalent) will be used to obtain the sample (Attachment D). Upon collection, samples will be placed into a clean stainless steel bowl. Once a sufficient amount of sample has been collected the sediment sample will be composited and placed into appropriate sample containers. Visual observations, photographic documentation, and field measurements of the sampling point will be recorded in the field logbook.

### 3.3.2 Surface Water

Grab samples for semi-volatile organics, RCRA metals, and inorganic parameters will be obtained using the designated pre-cleaned sample containers. A separate pre-cleaned container will be filled with sample water for measurement of temperature, pH, and specific conductance. Preservatives will be used as specified for the individual groups of analytes.

In the event that the wastewater sample cannot be taken from the facility piping using a sample container, the samples will be obtained using a pre-cleaned glass beaker. The beaker will be rinsed several times with the water to be sampled. To obtain the sample, the beaker will be submerged into the water stream maintaining an angle that will minimize turbulence.

Samples taken for analysis of volatile organics will be collected directly from the wastewater pipe or surface water. Two 40-ml glass vials will be filled so that no headspace or bubbles remain once the vial is sealed.

Surface water samples from the cooling lake and the unnamed lake will be collected using a pre-cleaned Teflon pond dipper (see Attachment C). All surface waters will be collected prior to collection of the corresponding sediment sample for a given sample location. All field measurements, visual observations, and photographic documentation will be entered into the field logbook.

### 3.3.3 Soil Samples

Grab samples of surficial soils adjacent to the hazardous waste container storage area will be obtained using a stainless steel scoop or trowel. Two samples will be obtained from each potential drainage pathway sampled. The first samples

(Sample numbers 9A and 9B) will be obtained at the upgradient location near the storage area, while the second sample (Sample numbers 10A and 10B) will be obtained at a downgradient location. A third soil sample (Sample numbers 11A and 11B) will be obtained at the downgradient portion of the slope, but within a different drainage gully. Samples will be collected by cleaning away the organic surface debris and obtaining a sample of surficial soils to a maximum depth of six inches. Split samples will be obtained at each sampling point. One sample (approximately 200 to 300 grams) will be placed in a resealable plastic bag. Soils in the bag will be disaggregated and allowed to equilibrate with the air space in the bag for a period of two to three minutes. The probe of an Hnu (or equivalent photoionization detector) will be inserted into a corner of the bag to obtain a measurement of the organic vapor content of the headspace within the bag. This measurement will be recorded along with a visual classification of the soil (SCS characteristics) and other observations. The second sample will be placed into the appropriate sample container immediately upon collection.

#### **3.4 Containerization, Labeling, and Preservation**

Once the samples are collected in their appropriate containers (see Table 4), each sample will be labeled with a unique sample number and traffic report. Duplicate samples will be indicated on the sample label with a "D" following the sample number. After labeling, the samples will be placed in plastic bags, sealed, and placed on ice in a secured cooler. The sample location, photographic documentation, visual observations, field measurements, and sample identification codes will be recorded in the field logbook.

All water samples designated for total organic carbon, oil and grease, or metals will be preserved with the appropriate acid to a pH < 2.0. The water and rinsate samples

designated for total organic carbon (TOC) analysis will be preserved with 5 ml 1:1 HCl (per liter of sample.) Water and rinsate samples designated for oil and grease analysis will be preserved with 5 ml 1:1 H<sub>2</sub>SO<sub>4</sub>. Water and rinsate samples designated for total metals will be preserved with 5 ml 1:1 HNO<sub>3</sub> per liter. Water samples designated for metals and total dissolved solids (TDS) analysis will be filtered prior to placement in the sample container. All samples will be kept in coolers, out of direct sunlight, and placed on ice to 4°C.

The only critical holding time is for the volatile organics analyses of soil and water samples. Seven days are allotted prior to extraction. In this case, Jacobs will evaluate the sampling schedule and may ship samples from Keokuk, Iowa to the Iowa Hygienic Laboratory on a daily basis so as not to jeopardize the sample integrity.

#### 4.0 SAMPLE DOCUMENTATION

An EPA Region VII chain-of-custody form will be used to document custody of each sample. Strict chain-of-custody procedures will be employed, as described in Section 7.0 of Jacobs' TES IV QAPjP for RFAs (EPA, 1987). Multi-media field data sheets and sample labels will be filled out in accordance with all procedures described in EPA Region VII's SOP No. SG03B (Identification and Documentation of Samples). The Region VII Environmental Services Division (ENSV) will supply chain-of-custody forms, custody seals, and any other paperwork required to ship samples to the Iowa Hygienic Laboratory in Iowa City, Iowa. Sample containers, shipping coolers, and preservatives will also be supplied by ENSV. Procedures for sample containerization, preservation, and holding times will conform to those contained in EPA Region VII's SOP No. FW002B (Sample Containers) and EPA Region VII's SOP No. FW003B (Sample Preservation and Holding Times) (EPA, 1987).

It is anticipated that samples will be shipped to the Iowa Hygienic Laboratory. Samples collected at the Sheller-Globe facility are considered to be low concentration/low hazard. All environmental samples will be packaged, labeled, and shipped in accordance with U.S. Department of Transportation (DOT) regulations as required in 49 CFR 173.24(a). All shipments of samples shall be shipped via an overnight carrier to the attention of Dr. Keith Cherryholmes, Iowa Hygienic Laboratory, Oakdale Hall, Oakdale Campus, Iowa City, Iowa 52242.

Samples will be analyzed by the Iowa Hygienic Laboratory, with an estimated turn around time of sixty (60) days. Laboratory analytical data will be sent to the attention of the Jacobs Engineering Group Work Assignment Manager: Byron Kesner, Jacobs Engineering Group Inc., P.O. Box 8717, Albuquerque, NM 87198-8717.

#### 5.0 SAMPLING ACTIVITIES SCHEDULE

The tentative schedule for sampling is based on having the sampling plan finalized by August 30, 1988. Based on this deadline, the schedule for sampling at the site is September 26 through September 29. If this schedule cannot be met by the laboratory, the alternate sampling date will be October 3 through October 6.

Equipment Staging	September 26
Sampling	September 27-28
Sample Submittal	September 28
Receipt of Analytical	December 8
Results (estimated)	

Note that this sampling schedule may change or be delayed if inclement weather is encountered.

## 6.0 FIELD QUALITY ASSURANCE/QUALITY CONTROL

Sampling methods detailed in this sampling plan and the QAPjP (EPA, 1987) shall be strictly adhered to. Deviations or additions to this plan will be carefully documented in a bound field notebook. Field observations and field generated forms will be noted and attached to the field notebook. Photographs will be logged in the notebook and labeled when returned from the developing laboratory.

The facility may obtain split samples, although they are responsible for supplying their own containers. A Sample Receipt Form will be completed, signed, and provided to Sheller Globe for all samples.

### 6.1 Field Decontamination of Sampling Equipment

The soil and sediment samples will be taken with stainless steel sampling equipment; water samples will be obtained using Teflon sampling equipment. All sampling equipment will be decontaminated between use at each separate location. When equipment is to be reused, it shall be decontaminated as summarized below:

1. Brush off loose dirt with a soft bristle brush or cloth.
2. Rinse thoroughly with potable water.
3. Wash in nonphosphate ("Liquinox") detergent with potable water.
4. Rinse thoroughly with distilled water.
5. Rinse thoroughly with methanol.
6. Rinse thoroughly with deionized water.
7. Air dry in dust free environment.

8. Store in aluminum foil until transport to and use at the next scheduled sample point.

## **6.2 Quality Assurance/Quality Control Samples**

A number of quality control samples will be collected to ensure that all data produced are valid and defensible. In addition, quality control samples will allow a good comparison of the data gathered.

### **6.2.1 Equipment Blank**

One equipment rinsate sample will be taken (Table 2) following sample collection at sample location Number 7A. The sample collection equipment will be decontaminated as explained in Section 6.1 above, then the equipment will be rinsed with deionized water with the water draining into a stainless steel bucket. This sample will be analyzed for the same constituents as listed in Table 3.

### **6.2.2 Field Blank**

One field blank for water will be taken to assure that contamination of the samples does not occur during sample processing (Table 2). The EPA laboratory will provide the field blank. The field blank will be prepared and preserved in the field (for metals analysis only) and transported back to the laboratory with the other samples.

### **6.2.3 Field Duplicates**

One field duplicate will be taken at sample location No. 5A and 5B as presented in Table 2. The duplicate for water will be obtained at the identical sample location as the original sample. The duplicate for sediment shall be obtained by compositing one sample into a stainless steel bowl, then splitting that sample into



two samples. Each duplicate location will be documented in the field logbook in accordance with procedures outlined in the EPA Region VII QAPjP (EPA, 1987).

Where appropriate, if the facility requests split samples, each sample will be prepared as stated above and will be treated as if it were a QA/QC duplicate. Again, all facility-requested split samples will be recorded in the field logbook (EPA, 1987).

## 7.0 HEALTH AND SAFETY CONSIDERATIONS

A standard Jacobs Site-Specific Health and Safety Plan will be completed and approved by the Jacobs Corporate Health and Safety Officer prior to site entry and SV activities. The approved site safety plan and all associated site entry procedures, safety considerations, and emergency procedures shall be thoroughly reviewed by each member of the sampling team prior to site entry and SV activities. Each member of the sampling team shall be subject to an ongoing and active medical surveillance program and shall be authorized for use of respiratory protection.

Determination of the appropriate level of personal protection during any phase of the SV will be made by surveillance with a photoionization detector. Levels of protection criteria are summarized below:

Level D - <3 ppm above offsite ambient air and nuisance odors

Level C - 3-5 ppm above offsite ambient air

Level B - >5 ppm (Leave site)

All measurements are to be taken in the breathing zone. If photoionization detector readings exceed 5 ppm in ambient air, TES IV personnel will vacate the area and re-

evaluate the hazard to determine the required level of protection as set forth in the site safety plan (Attachment G).

The immediate hazards at Sheller-Globe are ingestion or inhalation of volatile and semi-volatile organic vapors and the ingestion or inhalation of dust particles which may have semi-volatiles or heavy metals adsorbed to them. Standard minimum protective gear shall include cotton coveralls or disposable Tyvek coveralls for general body protection, hard hat, safety glasses, steel-toed/steel-shanked neoprene boots. Gloves (nitrile or better) shall be worn during sample collection and handling.

No eating, drinking, smoking or other hand-to-mouth activities will be allowed on site except in facility designated areas and after proper decontamination. However, because heat stress is anticipated to be a major hazard during the SV, regularly scheduled breaks for the sampling team to replenish fluids, monitor heart rate, and oral temperature (in situations where Level C personal protective equipment is necessary) will be scheduled.

These standards are to be considered minimum; all of Sheller-Globe's guidelines for onsite safety shall be adhered to and will supersede Jacobs' standards if they are more stringent.

Jacobs field personnel who will participate in this sampling visit are:

Project Team Leader	Byron Kesner
Site Safety Officer	Byron Kesner
Field Team Leader	Valda Terauds

## 8.0 CONTAMINATED OR POTENTIALLY CONTAMINATED TRASH

Sheller-Globe Inc. Keokuk will be requested to take and dispose of all contaminated or potentially contaminated trash and contained equipment decontamination rinse water generated during the sampling activity.

## 9.0 REFERENCES

EPA, 1986. "Test Methods for Evaluating Solid Waste Physical/Chemical Methods," U.S. EPA, Publication SW-846, November, 1986.

EPA, 1987. U.S. Environmental Protection Agency Region VII, Quality Assurance Project Plan for Performing RCRA Facility Assessments, June 26, 1987.

EPA, 1988. Draft Report, Preliminary Assessment, Sheller Globe-Keokuk Plant, Keokuk, Iowa, July, 1988.

**ATTACHMENT A**

**REGION VII ANALYTICAL  
SERVICES REQUEST FORM**

# FIELD SHEET REQUEST FORM

Activity No: AEF13 FY: 88 Source Hazard Code: 2R  
 Media: Air Hazardous Waste Sediment/Sludge Tissue Water

01, 09, 13, 15, 19, 29, 30, 31, 32

Sample No:        OCC:        STORET Station No:       

Sample Description: Sheller-Globe - RFA/SV

City: Keokuk State: LA Beg Date: 9-26 End Date: 9-28

Regular Groups: WO, WK, WJ Special Groups: W10

Individual Tests: oil & grease TDS TSS TOC TOX

Sample No: 10 OCC: D STORET Station No:       

Sample Description: Sheller-Globe - RFA/SV

City: Keokuk State: LA Beg Date: 9-26 End Date: 9-28

Regular Groups: WO, WK, WJ Special Groups: W10

Individual Tests: oil & grease TDS TSS TOC TOX

Sample No. 05, 07 OCC:        STORET Station No:       

Sample Description: Sheller-Globe - RFA/SV

City: Keokuk State: LA Beg Date: 9-26 End Date: 9-28

Regular Groups: WJ Special Groups:       

Individual Tests: oil & grease TDS TSS

Sample No: 28 OCC: F STORET Station No:       

Sample Description: Sheller-Globe - RFA/SV

City: Keokuk State: LA Beg Date: 9-26 End Date: 9-28

Regular Groups: WJ Special Groups:       

Individual Tests:

# FIELD SHEET REQUEST FORM

Activity No: AEF13 FY: 88 Source Hazard Code: 2R  
 Media: Air Hazardous Waste Sediment/Sludge Tissue Water

Sample No: 16 OCC: E STORET Station No: \_\_\_\_\_  
 Sample Description: Sheller-Globe-RFA/SV  
 City: Keokuk State: LA Beg Date: 9/26 End Date: 9/28  
 Regular Groups: WO, WK, WJ Special Groups: W10  
 Individual Tests: oil & grease TDS TSS TOC TOX

Sample No: 03 OCC: \_\_\_\_\_ STORET Station No: \_\_\_\_\_  
 Sample Description: Sheller-Globe-RFA/SV  
 City: Keokuk State: IA Beg Date: 9/26 End Date: 9/28  
 Regular Groups: WJ Special Groups: \_\_\_\_\_  
 Individual Tests: oil & grease TDS TSS TOC TOX

Sample No: 18 OCC: E STORET Station No: \_\_\_\_\_  
 Sample Description: Sheller Globe-RFA/SV  
 City: Keokuk State: IA Beg Date: 9/26 End Date: 9/28  
 Regular Groups: WJ, WO, WK Special Groups: \_\_\_\_\_  
 Individual Tests: \_\_\_\_\_

Sample No: \_\_\_\_\_ OCC: \_\_\_\_\_ STORET Station No: \_\_\_\_\_  
 Sample Description: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Beg Date: \_\_\_\_\_ End Date: \_\_\_\_\_  
 Regular Groups: \_\_\_\_\_ Special Groups: \_\_\_\_\_  
 Individual Tests: \_\_\_\_\_

# FIELD SHEET REQUEST FORM

Activity No: AEF13 FY: 88 Source Hazard Code: 2R  
 Media: Air Hazardous Waste Sediment/Sludge Tissue Water

02, 04, 08  
 Sample No:        OCC:        STORET Station No:         
 Sample Description: Sheller-Globe - RFA/SV  
 City: Keokuk State: LA Beg Date: 9-26 End Date: 9-28  
 Regular Groups: SJ Special Groups:         
 Individual Tests:       

06, 14, 20, 21, 28, 29  
 Sample No:        OCC:        STORET Station No:         
 Sample Description: Sheller-Globe - RFA/SV  
 City: Keokuk State: LA Beg Date: 9-26 End Date: 9-28  
 Regular Groups: SJ,SO,SK Special Groups:         
 Individual Tests:       

Sample No: 12 OCC: D STORET Station No:         
 Sample Description: Sheller-Globe - RFA/SV  
 City: Keokuk State: LA Beg Date: 9-26 End Date: 9-28  
 Regular Groups: SJ,SO,SK Special Groups:         
 Individual Tests:       

22, 23, 24, 25, 26, 27, 30, 31  
 Sample No:        OCC:        STORET Station No:         
 Sample Description: Sheller-Globe RFA/SV  
 City: Keokuk State: LA Beg Date: 9-26 End Date: 9-28  
 Regular Groups: SO,SK Special Groups:         
 Individual Tests:

**ATTACHMENT B**

**SAMPLE CONTAINER REQUEST FORM**



## SAMPLE EQUIPMENT REQUEST

PROJECT NAME: Sheller-Globe RFA

REQUESTOR: Byron Kesner/Gary Kelso

EPA ACTIVITY NO: AEF 13

CONTRACTOR: Jacobs Engineering Group

DATE CONTAINERS NEEDED: September 26, 1988

SAMPLING DATE: September 26, 1988

DATE REQUEST SUBMITTED: August 26, 1988

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>CONTAINER (ITEMS) NEEDED</u>
A	80-OZ AMBER GLASS	12
B	40-ML GLASS VIAL (VOAs)	60
C	1-L CUBITAINER	44
D	4-L CUBITAINER	2
E	120-ML WIDE-MOUTH GLASS VIAL	
F	16-OZ WIDE-MOUTH GLASS JAR	2
G	8-OZ WIDE-MOUTH GLASS JAR	20
H	4-OZ WIDE-MOUTH GLASS JAR	
I	1-L AMBER GLASS BOTTLE (NECK)	
J	32-OZ WIDE-MOUTH GLASS JAR	20
K	4-L AMBER GLASS BOTTLE	
L	4-OZ PLASTIC (TOC)	10
M	8-OZ AMBER GLASS (TOX)	10
N	PLASTIC BAG (SHIPPING)	4
O	ICE CHESTS (SHIPPING)	4
P	FOAM WRAPPING (SHIPPING)	
Q	FIBER TAPE (SHIPPING)	2 rolls
R	CHAIN-OF-CUSTODY SHEETS	4
S	PRESERVATIVE TYPE (HNO <sub>3</sub> -H <sub>2</sub> SO <sub>4</sub> -ETC.)	NHO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl
T	CUSTODY TAPE	1 ROLL

**ATTACHMENT C**

**METHOD III-2: USE OF POND SAMPLER FOR THE  
COLLECTION OF SURFACE WATER SAMPLES**

SECTION 23.0  
SURFACE WATERSUSE OF POND SAMPLER FOR THE COLLECTION OF SURFACE WATER SAMPLESDiscussion

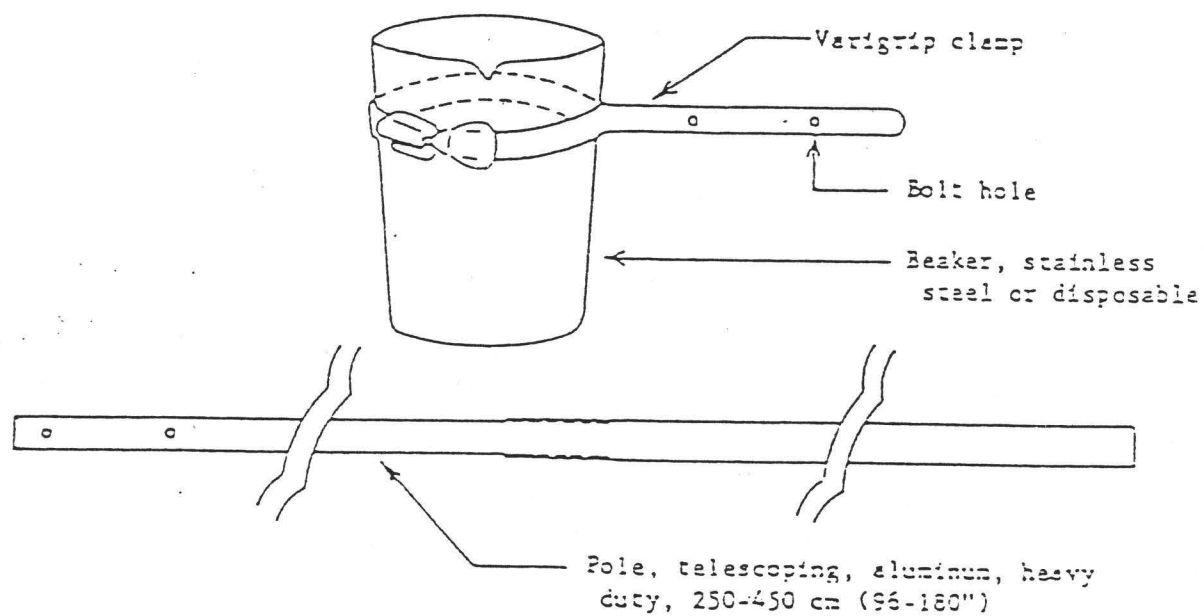
The pond sampler consists of an adjustable clamp attached to the end of a two- or three-piece telescoping aluminum tube that serves as the handle. The clamp is used to secure a sampling beaker (see Figure 23-1). The sampler is not commercially available, but it is easily and inexpensively fabricated. The tubes can be readily purchased from most hardware or swimming pool supply stores. The adjustable clamp and sampling beaker can be obtained from most stores. The adjustable clamp and sampling beaker can be obtained from most laboratory supply houses. The materials required to fabricate the sampler are given in Appendix B.

Uses

The pond sampler is used to collect liquid waste samples from disposal ponds, pits, lagoons, and similar reservoirs. Grab samples can be obtained at distances as far as 3.5 cm from the edge of the ponds. The tubular aluminum handle may bow when sampling very viscous liquids if sampling is not done slowly.

Procedures for Use

1. Assemble the pond sampler. Make sure that the sampling beaker and the bolts and nuts that secure the clamp to the pole are tightened properly.
2. With proper protective garment and gear, take grab samples by slowly submerging the precleaned beaker with minimal surface disturbance.
3. Retrieve the pond sampler from the surface water with minimal disturbance.
4. Remove the cap from the sample bottle and slightly tilt the mouth of the bottle below the dipper/device edge.
5. Empty the sampler slowly, allowing the sample stream to flow gently down the side of the bottle with minimal entry turbulence.
6. Continue delivery of the sample until the bottle is almost completely filled.

SECTION 23.0  
SURFACE WATERS

Source: Reference 1.

Figure 23-1 Pond sampler.

SECTION 23.0  
SURFACE WATERS

7. Select appropriate sample bottles and preserve the sample if necessary as per guidelines in appendix A.
8. Check that a Teflon liner is present in the cap if required. Secure the cap tightly.
9. Label the sample bottle with an appropriate sample tag. Be sure to label the tag carefully and clearly, addressing all the categories or parameters. Record the information in the field logbook and complete the chain-of-custody documents.
10. Properly clean and decontaminate the equipment prior to reuse or storage using recommended guidelines of Appendix E.

Sources

deVera, E.R., Simmons, B.P., Stephens, R.D., and Storm, D.L. "Samplers and Sampling Procedures for Hazardous Waste Streams," EPA-600/2-80-018, January 1980.

GCA Corporation, "Quality Assurance Plan, Love Canal Study - Appendix A, Sampling Procedures," EPA Contract 68-02-3168.

**ATTACHMENT D**

**METHOD III-4: SAMPLING SLUDGE OR SEDIMENTS  
WITH A HAND CORER**

SECTION 21.0  
SLUDGES AND SEDIMENTS

## SAMPLING SLUDGE OR SEDIMENTS WITH A HAND CORER

Discussion

This device is essentially the same type of thin-wall corer described for collecting soil samples (section 20.0). It is modified by the addition of a handle to facilitate driving the corer (see figure 21-1) and a check valve on top to prevent washout during retrieval through an overlying water layer.

Uses

Hand corers are applicable to the same situations and materials as the scoop described previously. It has the advantage of collecting an undisturbed sample which can profile any stratification in the sample as a result of changes in the deposition.

Some hand corers can be fitted with extension handles which will allow the collection of samples underlying a shallow layer of liquid. Most corers can also be adapted to hold liners generally available in brass, polycarbonate plastic or Teflon. Care should be taken to choose a material which will not compromise the intended analytical procedures.

Procedures for Use

1. Inspect the corer for proper precleaning, and select sample location.
2. Force corer in with smooth continuous motion.
3. Twist corer then withdraw in a single smooth motion.
4. Remove nosepiece and withdraw sample into a stainless steel or Teflon tray.
5. Transfer sample into an appropriate sample bottle with a stainless steel lab spoon or equivalent.
6. Check that a Teflon liner is present in cap if required. Secure the cap tightly. The chemical preservation of solids is generally not recommended. Refrigeration is usually the best approach supplemented by a minimal holding time. Appendix A, Sample Containerization and Preservation should be consulted for specific requirements.



SECTION 21.0  
SLUDGES AND SEDIMENTS

7. Label the sample bottle with the appropriate sample tag. Be sure to label the tag carefully and clearly, addressing all the categories or parameters. Complete all chain-of-custody documents and record in the field logbook.
8. Decontaminate sampling equipment after use and between sample locations as required by procedures in Appendix E, Decontamination.



SECTION 21.0  
SLUDGES AND SEDIMENTS

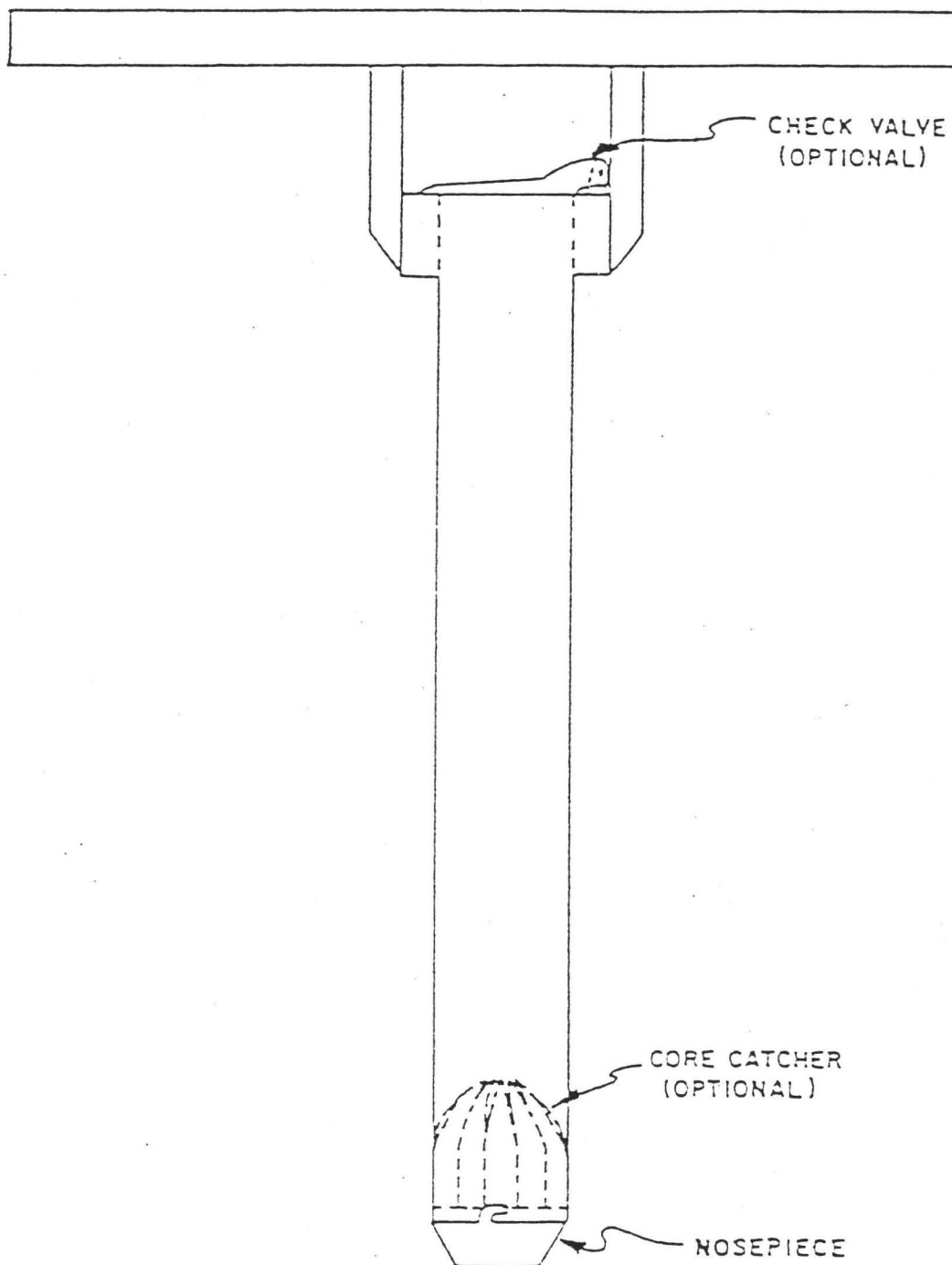


Figure 21-1 Hand corer.

**ATTACHMENT E**

**PROCEDURES FOR MEASUREMENT OF pH, SPECIFIC  
CONDUCTANCE AND TEMPERATURE**

## SECTION 13.0

### FIELD MEASUREMENT OF pH

#### INTRODUCTION

Perhaps no water quality parameter is measured as frequently as pH. The measurement is so easily made that the attention given it is often inadequate. This is unfortunate since an accurate pH is critical for the prediction and interpretation of the reactions and migration of dissolved species. This procedure is designed to provide a useful pH measurement under most field situations. Conditions under which accurate measurements cannot be made are also described.

#### EVALUATION

##### Available Equipment

There are numerous adequate pH meters available. Meters used in remedial action programs should have temperature and slope adjustment and a repeatability of  $\pm 0.01$ . There is nothing to be gained by purchasing an instrument that exceeds this precision since that would also exceed the accuracy of the calibration.

pH meters for field use should be of rugged construction. A foam-lined carrying case is convenient both for travel and for use as a work table. Battery operation with easy replacement and/or recharge of batteries is required.

Combination pH electrodes are recommended for field use. Although more expensive than a simple glass and reference electrode pair, convenience of use easily outweighs the additional cost. Always carry a spare electrode and keep both the spare and working electrode immersed in pH 4 or pH 7 buffer when not in use.

##### Measurement Problems

Temperature, atmospheric contamination, and ionic strength are factors that affect pH measurements; the presence of color, turbidity, or colloids will not affect pH measurements.

Temperature - The temperature compensation on a pH meter only permits adjustment of the electrode slope. It does not compensate for changes in the potential of the reference electrode, the asymmetry potential of the glass electrode, or the liquid junction potential. Nor does it compensate for changes in

## SECTION 13.0

### FIELD MEASUREMENT OF pH

pH due to temperature. Figure 13-1 (from Barnes, 1964) demonstrates this temperature effect on pH. Thus, the temperature of the buffer and the unknown must be recorded at the time of measurement. Ideally, their temperatures will be within 2°C.

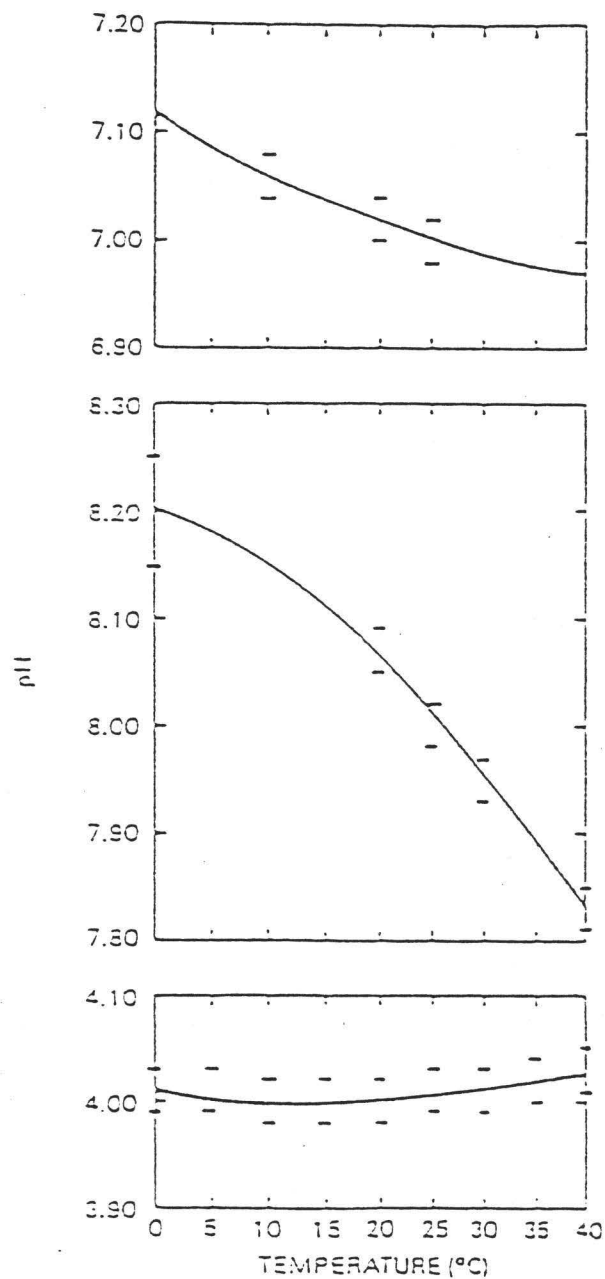


Figure 13-1. pH of Buffer Solutions as a Function of Temperature



## SECTION 13.0

## FIELD MEASUREMENT OF pH

Atmospheric Contamination - Atmospheric contamination can be a significant problem for groundwater samples. Dissolved oxygen and carbon dioxide can be evolved or dissolved when the sample is exposed to air. A considerable change in pH may result. For best results, a groundwater sample is pumped through a closed container in which pH and temperature probes are immersed. The measurements are not recorded until both temperature and pH have stabilized. The sampling pump should be stopped prior to recording the data because a streaming potential results with flowing sample.

Ionic Strength - Because of errors due to ionic strength (which are not worth correcting in the field), pH measurements should be accompanied by a measurement of the specific conductance. pH is a measure of the hydrogen ion activity. An ideal solution is assumed in which other ions do not affect the hydrogen activity. This assumption deteriorates if the ionic strength is too high. Some remedial action investigations include sampling waste ponds or other highly contaminated water. Since buffer solutions used in the field are not made with a similar concentration of dissolved ions, the pH measurement will be inaccurate. Similarly, samples with very low ionic strength will cause difficulties because the resistance of the sample approaches that of the glass electrode. For best results, samples with very low ionic strength should be stirred for a few seconds prior to the reading. Even then, it may require several minutes for the reading to stabilize.

High sodium and alkalinity may also produce errors in the pH measurement. For pH >9 and a sodium concentration of 10 moles/liter, a special electrode is needed. One can be purchased from any of the principal electrode manufacturers. Similarly, any pH value that is less than 1 or greater than 9 will have a greater uncertainty associated with it because the electrode response is non-Nernstian in these regions (Langmuir, 1971).

APPARATUS

The following apparatus are recommended for the field measurement of pH:

- pH meter with repeatability of  $\pm 0.01$
- Buffer solutions of pH 4.0, 7.0, 9.0
- Combination pH electrode
- Reference electrode filling solution
- Electrode holder

## SECTION 13.0

### FIELD MEASUREMENT OF pH

- Thermometer
- Distilled water and wash bottle
- Disposable beakers

#### CALIBRATION

##### Standards

Commercially prepared buffer solutions are used for calibration. Solutions traceable to the National Bureau of Standards can be purchased inexpensively from any major laboratory supply house. These solutions are certified with an accuracy of  $\pm 0.01$  pH units at a specific temperature, usually 25°C.

##### Procedure

There are many adequate pH meters available (cf. Section 13.2). Since these use a variety of terms (balance, calibrate, slope, standardize) to describe the calibration process, it is not practical to list a detailed set of instructions that applies to each type of instrument. The user must be familiar with the manufacturer's instructions for his particular instrument. The following general guidelines should be followed for calibration of any pH meter:

1. Calibrate the meter with two buffer solutions. (The slope cannot be adjusted with a one-point calibration. The slope check is the best way to determine if the electrodes are in working order.)
2. The two buffers used for calibration should bracket the anticipated pH of the unknown. For an anticipated pH of 6, calibrate with pH 4 and 7 buffers; for an anticipated pH of 8, calibrate with pH 7 and pH 9.
3. Ensure that the buffers are at the same temperature.
4. Adjust the instrument to read the pH 7 buffer accurately. Remember to take into account variations in pH caused by temperature. Adjust temperature compensator according to the manufacturer's instructions.
5. Read the second buffer. Adjust slope to obtain the correct reading. If the slope deviates greatly from its theoretical value, check for defective electrode or contaminated buffer solution.

## SECTION 13.0

### FIELD MEASUREMENT OF pH

Theoretically, buffer solutions are stable indefinitely. However, they are susceptible to contamination. Hence, old, partially full bottles are often contaminated and should be replaced.

#### MEASUREMENT/SAMPLE PLAN

Samples should not be filtered prior to analysis. A submersible pump or bladder pump is preferred for obtaining groundwater samples because degassing of the sample is minimized. The pH measurement must be made in the field.

#### MEASUREMENT PROCEDURE

These steps should be followed for the field measurement of pH:

1. Calibrate the instrument according to the manufacturer's instructions and the guidelines provided in Section .
2. Set temperature compensation to the temperature of the sample.
3. Rinse electrode with deionized water and with the sample. Immerse electrode in the solution, and record the value. If the sample is being pumped through a closed container, wait for temperature and pH to stabilize. Stop sample flow to prevent the streaming potential and record the pH.

#### DATA REDUCTION

Field measurements of pH are ordinarily recorded to  $\pm 0.1$  pH unit. The variety of possible errors makes more accurate measurements very difficult. All field measurements of pH should be recorded with the temperatures of the buffer and sample and the specific conductance of the sample. The pH measurement cannot be safely interpreted without this information.

#### MODELING CONSIDERATIONS

Extraordinary precautions may be needed if the data are to be used for modeling purposes. A relative accuracy of  $\pm 0.002$  is possible under controlled laboratory conditions (Laitinen and Harris, 1976). Langmuir (1971) states that "with proper care, pH may be determined with a reproducibility of about  $\pm 0.02$  units and an accuracy of  $\pm 0.05$  units in the field." To accomplish this, the



## SECTION 13.0

### FIELD MEASUREMENT OF pH

buffers should be bathed in a water bath of the sample until the temperatures have equilibrated. This can be done with a flow-through cell. Test tubes containing buffer are placed in cell so that sample can flow around them. Once the buffers are at the sample temperature, proceed with the calibration and measurement procedures described in Sections 13.4 and 13.6.

There are circumstances under which a measurement of  $\pm 0.02$  repeatability and  $\pm 0.05$  accuracy cannot be made. For example, the electrode response will not be stable for poorly buffered samples. In addition, if the ambient temperature is very different from the sample temperature, it will be difficult to maintain a constant temperature.

#### QUALITY ASSURANCE

The following information about the field measurement of pH must be logged for quality assurance documentation:

- Time when the two-buffer calibration was last performed. The two-buffer calibration should be performed at each sample site or once each hour.
- Buffer temperature at time of calibration.
- Sample temperature at time of measurement.
- Specific conductance of sample.
- Measurement conditions, i.e., in situ, open container, or air-exclusion container.



## SECTION 14.0

## FIELD MEASUREMENT OF SPECIFIC CONDUCTANCE

INTRODUCTION

Specific conductance is a widely used indicator of groundwater quality. It is a simple indicator of change within a system and provides useful information to lab analysts performing other measurements on the sample. The measurement is comprehensible even to the layman and is, therefore, a useful tool for studying water contamination.

EVALUATIONAvailable Equipment

There are numerous adequate specific conductance meters available. Any meter used in remedial action programs should also measure temperature, be equipped with a temperature compensator, and read directly in  $\mu\text{mhos/cm}$  corrected to  $25^{\circ}\text{C}$ . The probe-type unit, rather than the pipet type, is preferable for field use because it is more rugged. A relative accuracy of  $\pm 3$  percent is adequate for the type of measurement being performed.

The meter should be of rugged construction. A foam-lined carrying case is essential. Battery operation with easy recharge and/or replacement of batteries is required.

Measurement Problems

The principal problem areas for specific conductance measurements are the temperature effect, determination of the cell constant, and allowance for very high ionic strengths. A change in temperature of  $10^{\circ}\text{C}$  can be assumed to cause an approximately 20 percent change in the measured specific conductance. Generally, reported data do not note whether the temperature correction has been applied. Some instruments perform the temperature compensation automatically, but this, too, is seldom noted in reported data. To ensure uniformity of readings, the data should be corrected to  $25^{\circ}\text{C}$ .

Field personnel are frequently not aware of the cell constant used in specific conductance measurements. A significant change in the cell constant indicates that the electrodes require cleaning or replatinizing. Thus, it is very important that the constant be checked with each calibration.

SECTION 14.0  
FIELD MEASUREMENT OF SPECIFIC CONDUCTANCE

Specific conductance varies linearly with ion concentration up to a specific conductance of about 5,000  $\mu\text{mhos/cm}$  (National Handbook of Recommended Methods for Water Data Acquisition, 1977).

Relative measurements are useful up to about 50,000  $\mu\text{mhos/cm}$ . Samples collected at remedial action program sites seldom have a specific conductance greater than 10,000  $\mu\text{mhos/cm}$ ; most are less than 5,000  $\mu\text{mhos/cm}$ .

APPARATUS

The following apparatus are needed for the field measurement of specific conductance:

- Specific conductance meter with temperature measurement and compensation
- Distilled water and wash bottle
- Disposable beakers

CALIBRATIONStandards

Reagent-grade potassium chloride (KCl) is universally used for the standardization of specific conductance equipment. Purer grades of KCl are available but are not worth the additional expense because of the errors already inherent in the measurement.

Standard solutions are made up at 0.001N, 0.01N, 0.1N, or 1N KCl. A concentration of 0.01N is used for most work because its specific conductance is closest to most natural samples.

Procedure

The instrument's measuring circuit is calibrated either by the manufacturer or with a calibrating resistor. The manufacturer's instructions should be followed for this step because they will be specific for the particular instrument.

The electrodes are calibrated by reading the specific conductance of standard KCl solutions. Individual manufacturers may use slightly different terminology, but the following general guidelines will always apply:

1. Prepare 0.01N KCl by dissolving 0.745 g of pure, dry KCl in 1 liter of deionized water.

SECTION 14.0  
FIELD MEASUREMENT OF SPECIFIC CONDUCTANCE

2. Measure the temperature of the standard solution and the water used for the dilution. They should be at the same temperature.
3. Use Table 14-1 to determine the expected specific conductance of the 0.01N KCl at that temperature.
4. Measure the specific conductance of the water ( $C_2$ ) and of the 0.01N KCl solution ( $C_1$ ). These readings can be used to check the cell constant (K) that was specified by the manufacturer using the equation

$$K = \frac{C_T + C_2}{10^5 \times C_1} \quad (14.1)$$

where  $C_T$  is the theoretical conductance of the standard solution (from Table 14.1).

Table 14-1. Relationship of Temperature and Specific Conductance for 0.01N Potassium Chloride

Temperature (°C)	Specific Conductance (µmhos/cm)
15	1141.5
16	1167.5
17	1193.6
18	1219.9
19	1246.4
20	1273.0
21	1299.7
22	1326.6
23	1353.6
24	1380.8
25	1408.1
26	1436.5
27	1463.2
28	1490.9
29	1518.7
30	1546.7



## SECTION 14.0

## FIELD MEASUREMENT OF SPECIFIC CONDUCTANCE

5. Large changes in the cell constant are generally an indication that the electrodes are dirty. Cleaning and replatinizing instructions can be found in the instrument manual or in the ASTM Annual Book of Standards.
6. Once the cell constant is checked, measurements can be made on unknown samples.

MEASUREMENT/SAMPLE PLAN

Samples should not be filtered prior to analysis. A submersible pump or bladder pump is preferred for obtaining groundwater samples because degassing of the sample is minimized. The specific conductance measurement must be made in the field.

MEASUREMENT PROCEDURE

Recommended measurement procedure steps are listed below:

1. Calibrate the instrument and check the cell constant according to the manufacturer's instructions and the guidelines provided in Section 4.4.
2. Measure and record temperature of sample.
3. Immerse probe into sample and record reading. (Note that probe should not be within several inches of large rocks because they can bias the reading.) Multiply sample reading by the cell constant to obtain the sample specific conductance,  $EC = (\text{cell constant}) (\text{instrument reading in } \mu\text{mhos})$ .

DATA REDUCTION

The number of significant figures reported depends upon the range setting for the measurement. Usually only two significant figures are reported. For example, values of 760 or 1100 are appropriate, whereas 757 and 1130 are not.

MODELING CONSIDERATIONS

Not applicable.



## SECTION 14.0

## FIELD MEASUREMENT OF SPECIFIC CONDUCTANCE

QUALITY ASSURANCE

The following information about the field measurement of specific conductance must be logged for quality assurance documentation:

- Source of standard
- Preparation date of standard
- Time of analysis
- Time of last calibration check
- Standard temperature reading and cell constant
- Sample temperature and reading

**ATTACHMENT F**

**FIELD MEASUREMENT OF SAMPLE LOCATIONS**

## SECTION 17.0

### FIELD MEASUREMENT OF SAMPLE LOCATIONS

#### Procedure

Prior to arriving at each site, the declination on the Brunton compass will be adjusted for the geographic work location.

#### General Guidelines

Rotate the dial on the compass through an angle equal to the magnetic declination; westward (counterclockwise) if true north is to the east of magnetic north and eastward (clockwise) if true north is to the west of magnetic north. Information of declination will be taken off the appropriate USGS 7.5' topographic map for each facility.

#### MEASUREMENT PLAN

Prior to performing field measurements of sampling point locations, the facility's scale drawing, topographic, or other standard map will be visually compared to field-observed sampling point locations. Discrepancies will be noted and field measurements will be performed on the questionable sampling points.

#### MEASUREMENT PROCEDURES

Recommended procedural steps are listed below:

- o Calibrate the Brunton compass for the correct declination for the facility's geographic location.
- o Establish field reference points to be used which are also located on the facility map (e.g. other wells, building corners, benchmarks, property corners).
- o Position the compass to align the sampling point with a field reference point, making sure you stand away from large metal objects (i.e., protective well casings) in order to prevent any magnetic influence on the Brunton compass. Record the bearing on the map. Repeat this procedure for a second field reference point. Compass bearings will be read to the nearest degree.
- o In order to obtain the distance of the inner well casing reference point above or below land surface:
  - 1) Measure the distance from the land surface to the top of the outer protective well casing (measurement "a").

SECTION 17.0  
FIELD MEASUREMENT OF SAMPLE LOCATIONS

- 2) Measure the distance from the top of the outer protective well casing to the inner well casing reference point (measurement "b").
- 3) Subtract measurement "b" from measurement "a" to determine the inner well casing reference point's distance above or below land surface.

DATA REDUCTION

Using the north arrow on the facility map, position a protractor on the first field reference point and plot a line along the reverse of the bearing (e.g. if north 10° west, plot south 10° east) that was measured from the sampling point. Repeat this step for the second reference point. The place on the map at which the two lines cross will be the sampling point. If a noticeable discrepancy exists, a known (mapped) reference point can be triangulated with two other known points to check the validity of the north arrow on the map.

MODELING CONSIDERATIONS

Not applicable.

QUALITY ASSURANCE

The following information about the field measurements in which the Brunton compass was used must be recorded for quality assurance documentation:

- o Type of compass, serial number
- o Declination setting/source of declination
- o Date, time, weather conditions, name of person taking readings.



**ATTACHMENT G**

**SHELLER-GLOBE RFA SAMPLING VISIT SITE SAFETY PLAN**

JACOBS ENGINEERING GROUP INC.  
SITE HEALTH AND SAFETY PLAN FORM

## A. GENERAL INFORMATION

Project Number 68-01-7351Site Name: Sheller-Globe Work Assignment Number 05-B833-00Dates of Visit: September 26-29, 1988Objective(s): Sampling visit at facility - specifically solid waste management units.Original Safety Plan: Yes ☒ No ☐ Modification Number [            ]Site Location: (address or latitude/longitude) 40°24'N; 91°34'W3200 Main Street, Keokuk, Iowa 52632Directions to Site: U.S. Highway 218 North (Main Street) to the Sheller-Globe facility at 3200 Main Street.Map Attached: ☒ Yes No ☐Site Contact: Edgar Alva, Environmental Engineer Phone (319) 524-4560EPA Contact: Gary Kelso, Region VII Phone (913) 236-2887

Site Type: (active, inactive, landfill, industrial, etc.) \_\_\_\_\_

Active industrial facility w/various types of waste management activities.

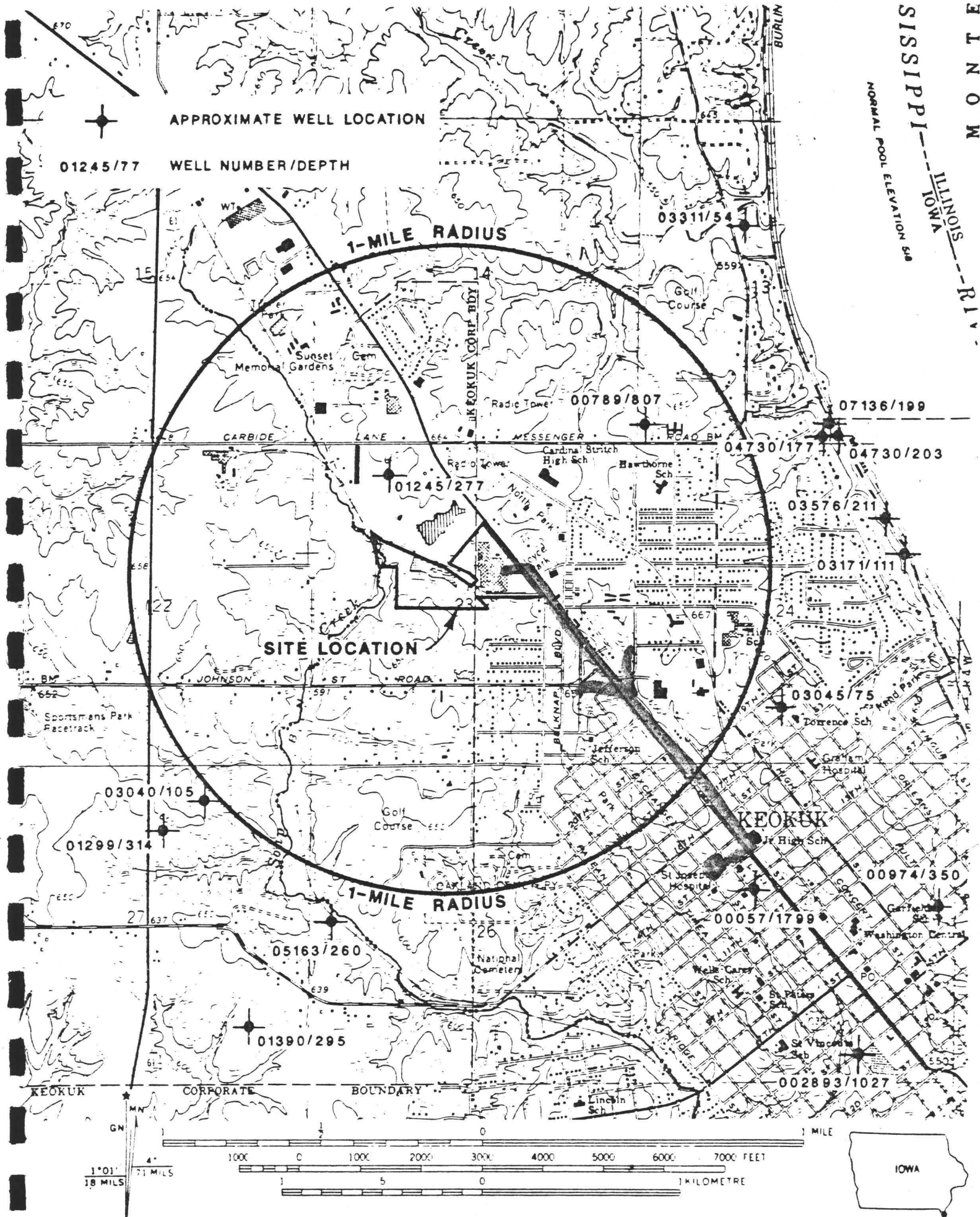


FIGURE 1. SITE LOCATION MAP

M GRID AND 1975 MAGNETIC NORTH  
DECLINATION AT CENTER OF SHEET

FIGURE 1

# RFA Sampling Jacobs Engineering

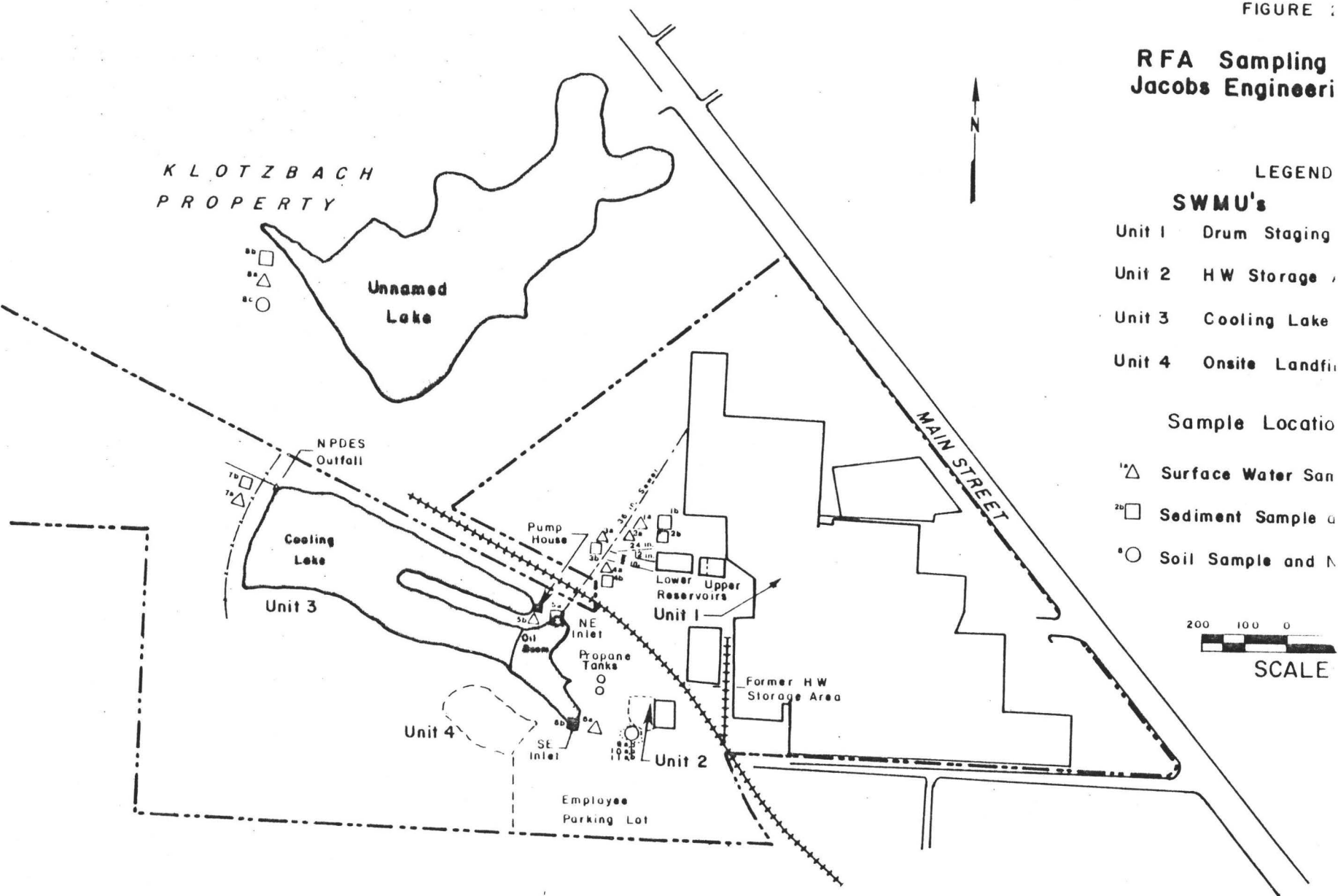
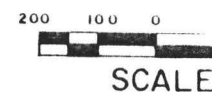
## LEGEND

### SWMU's

- Unit 1 Drum Staging
- Unit 2 HW Storage
- Unit 3 Cooling Lake
- Unit 4 Onsite Landfill

### Sample Location

- 1a △ Surface Water Sample
- 2b □ Sediment Sample
- 3c ○ Soil Sample and Analysis



Site History: (also include complaints from public, previous agency actions, known exposures or injuries, etc.)

Numerous violations recorded during RCRA inspections included: Leaking drums and containers (D001 - flammables, methylene chloride, oil/waste oil, solvents boiler chemicals, polyol), discharge of hazardous waste (D006 & D008) to ditch leading to the surface impoundment, and storage of incompatible wastes were among the violations that could potentially result in exposure at this site.

Site Description and Features: (include principal operations, principal waste disposal methods, and unusual features)

Sheller-Globe manufactures crash pads, urethane and plastic parts, and rubber weather stripping for the automotive industry. They have an on-site incinerator, settling ponds, a cooling lake, above-ground and underground storage tanks, and drum storage areas. From 1970 to 1975 drums were buried on-site. Major processes include: cure line solvent flush; head flush; paint booths, paint thinners; banbury mixing, vacuum forming, injection molding, and washing processes.

Surrounding Population: ☐ Urban ☒ Residential ☒ Industrial  
☒ Rural ☐ Other

## B. HAZARDOUS MATERIALS/WASTE CHARACTERISTICS

Waste Types: ☒ Solid ☒ Liquid ☐ Gas ☒ Sludge ☐ Unknown

☐ Other Generally liquids are stored in drums and tanks as well as surface impoundments.

Waste Characteristics: ☒ Corrosive ☒ Flammable ☐ Radioactive

☒ Volatile ☒ Toxic ☐ Reactive ☐ Unknown ☐ Other

Volatile organics in soil as well as cadmium wastewaters (low concentration)

and around cooling lake.

Hazardous Material Summary: List hazardous materials/waste and estimate amounts

K054 Chrome (blue) shavings from tanning industry - 900 lbs/yr (incinerated)

D002 Corrosives - 400 lbs/yr (c) U140 Isobutyl alcohol (I,T)

D006 Cadmium bearing wastewater (T)

D001 Flammables 100 lbs/yr (I) U161 Methyl isobutyl Ketone (I)

F002 Spent halogenated solvents (T)/F001 halogenated degreasing solvents (I,T) 48,000 lbs/yr.

F003 Spent non-halogenated solvents (I) U159 Methyl Ethyl Ketone (I,T)

F005 spent non-halogenated solvents (I,T) U223 Benzene 1,3-diisocyanomethyl (R,T)

U002 acetone (I) U229 Trichlorofluoromethane

U220 Toluene - 10,000 lbs/yr

### BASIS FOR LISTING

(I) - Ignitable (flash point less than 140°F)

(C) - Corrosive

(R) - Reactive

(T) - Toxic

(H) - Acute Hazardous Waste

## C. HAZARD EVALUATION

Hazards of Concern:

☒ Heat Stress ☐ Cold Stress ☒ Noise ☐ Underground Utilities

☒ Overhead Utilities ☒ Heavy Equipment ☐ Ladders ☐ Sharp Objects

☐ Pressurized Airlines ☐ Cylinders ☐ Scaffolds ☒ Explosion/Fire

☐ Unsecured Openings/Walls/Floors ☒ Insects & Snakes ☐ Biological

☒ Liquids in Open Containers, Ponds and Lagoons ☒ Slip, Trip, Fall

☐ Radiological, Other \_\_\_\_\_

TABLE - CHEMICAL EXPOSURE HAZARD SUMMARY

	Units = ppm				Exposure Route				Target Organs
	Exposure Limit	IDLH	TWA*	STEL*	Abs	Inh	Ing	Derm	
Acetone	1,000	20,000	750	1,000	-	x	x	(x)	Resp. sys., skin
Cadmium Wastewaters	-	-	40mg/m <sup>3</sup>	-			x		Rsep. sys.
Endosulfan			0.1mg/m <sup>3</sup>						
Isobutyl Alcohol	100	8,000	50	-	-	x	x	(x)	Resp. sys., skin
Methyl Benzene (Benzene)	10	2,000	10	-	x	x	x	x	Blood, CNS, Skin bone marrow, eyes, resp. system
MEK	200	3,000	200	300	-	x	x	x	CNS, lungs
MIBK	100	3,000	50						skin, CNS
Methylene Chloride	500	5,000	100	500	-	x	x	x	Skin, CVS, eyes, CNS
Toluene	200	2,000	100	150	x	x	x	x	CNS, liver, skin, kidney
Trichlorofluoromethane	1,000	10,000	1,000	1,000	-	x	x	x	CVS, skin

Ref. NIOSH pocket guide to Chem Hazards September 1985

\* TWVs &amp; Biol. Exposure indices 1987-1988.

(x) = minor route of exposure

Abs = Absorption

Inn = Inhalation

Ing = Ingestion

Derm = Dermal

CNS = Central Nervous System

CVS = Cardiovascular System

## TRANSFER OPERATIONS, PUMPING & IN-PLANT PROCESS

The following is a list of hazardous material denoting the method of transfer and frequency.

<u>HAZARDOUS MATERIAL</u>	<u>PIPING</u>	<u>FREQUENCY</u>
Process Oil	Underground outside the plant and above ground inside plant	Continuous
Head Flush	Pumped into 55 gallon drums in paint storage building then transferred to process area.	Intermittent Batch
Misc. Hazardous Waste in drums	Filled in plant and transported to outside storage area.	Intermittent Batch
Propane (standby fuel)	Underground outside of plant, above ground inside of plant	Continuous to bottle filling station. Continuous when in use for boiler fuel.
Toluene	Underground outside of plant, above ground inside of plant	Intermittent batch (pump to 275 gallon storage tank in process area)
Process Oils	Above ground piping	Pumped from storage tanks to bandbury or 275-Gallon holding tanks.
Paints (MEK, Toluene)	Paints and solvents are mixed in paint storage building and transfer to process area	Intermittent batch via fork truck
Freon II	Above ground to adjacent compounding room	Intermittent batch
Toluene Diisocyanate SF-52 Polyols	Above ground to mixing tanks (compounding piping) and above ground to process area or pumped into 55-gallon drums	Intermittent batch or continuous depending on cure line.



Exposure Hazards: (H = High, M = Moderate, L = Low, U = Unknown, N/A = Not Applicable)

Inhalation L Skin Contact L Ingestion L Radiological N/A

See Table 1: Chemical Exposure Hazard Summary

Overall Hazard: [ ] High [ ] Medium [L] Low [ ] Unknown

Explanation Sampling of surface, sediments, and soil (i.e., environmental samples) will be in areas where waste constituents (if present) are likely to be dilute and low hazard. Sampling will not occur in areas where concentrated hazardous wastes are stored or treated.

Background Review: [X] Complete [ ] Incomplete

Comments: Generally site stores solvents, reagents, and products used/produced in the manufacture of plastic crash pads, and rubber weatherstripping.

Information on SWMUs, wastes, site setting is contained in the Preliminary Assessment report.

#### D. SITE SAFETY WORK PLAN

<u>Field Activities Covered Under This Plan</u> ( <u>Task description/technique/location</u> )	<u>Level of Protection</u> ( <u>Primary contingency</u> )		<u>Schedule</u>
1 Sampling of surface water	D	C	variable
2 Sampling of soil (down to 6 inches)	D	C	variable
3			
4			

Site Personnel and Responsibilities:

<u>Name</u>	<u>Company</u>	<u>Responsibility</u>	<u>Jacobs Field Clearance</u>
Byron Kesner	JEG	Project/WA Manager	Yes
Valda Terauds	JEG	Site Manager	Yes
Byron Kesner	JEG	Site Safety Officer	Yes

Site Control: Map/Sketch attached X Site Secured \_\_\_\_\_

Perimeter Identified X Zones of Contamination Identified Yes \_\_\_\_\_

Comments: \_\_\_\_\_  
\_\_\_\_\_

Personal Protection: (if work requires more than one task, specify the level of protection, for each)

Task 1 Level: ☐ A ☐ B ☐ C ☒ D (w/mod. level C contingency)

Description: White coveralls, hard hat, safety glasses, steel toed boots

(neoprene or leather as conditions require) surgical inner and nitrile outer gloves, and full face air purifying respirator with combination cartridges ( GMC-H) organic vapors & dusts and tyvek) available if needed.

Task 2 Level: ☐ A ☐ B ☐ C ☒ D (w/mod. level C contingency)

Description: See Task 1

Task 3 Level: ☐ A ☐ B ☐ C ☐ D

Description: \_\_\_\_\_

Task 4 Level: ☐ A ☐ B ☐ C ☐ D

Description: \_\_\_\_\_

Field Monitoring Equipment & Materials: \_\_\_\_\_

<u>Instrument</u>	<u>Tasks</u>	<u>Action Guideline</u>
<u>HNU (PID) 10.2 eV</u> <u>lamp</u>	<u>Task 1 and 2</u>	<u>1.0 ppm consistent deflection in</u> <u>breathing zone upgrade to mod. Level C</u>
_____	_____	_____
_____	_____	<u>5.0 ppm - leave site and reevaluate hazard</u>

Decontamination Procedures: (list stations/equipment and/or attach diagram)

Personnel: Gloves will be disposed of. Neoprene boots (if needed) will be washed  
in an Alconox detergent solution and rinsed in water.

Equipment: 1. Brush off loose dirt with a soft bristle brush or cloth.  
2. Rinse thoroughly with potable water.  
3. Wash in non ph ("Alconox") detergent with potable water.  
4. Rinse with distilled water.  
5. Rinse thoroughly with pesticide grade acetone.  
6. Rinse with deionized water.  
7. Air dry in dust free environment.

Site Entry Procedures: Jacobs will coordinate with the EPA Primary Contact prior to site entry. Jacobs will then follow Sheller-Globe's procedures for entry into the site.

Work Limitations (time of day, etc.): Daylight hours 0800 to 1700 hours

Investigation Derived Material Disposal: All waste material derived (disposable gloves and decontamination water (if applicable)) will be disposed of at the facility. However, no generation of these materials is anticipated.

#### E. EMERGENCY INFORMATION

Emergency Phone Numbers:

Ambulance	<u>319/ 524-7150</u>
Hospital Emergency Care	<u>319/ 524-7150</u>
Poison Control Center	<u>319/ 524-7150 (Hospital)</u>
Fire	<u>319/ 524-1642</u>
Police	<u>319/ 524-2741</u>
Explosives Unit (if applicable)	<u>319/ 524-1642 (Fire)</u>
<u>Sheller-Globe Emergency Coordinator</u>	<u>Richard Adkins 217/847-2673 (Home)</u>

CHEMTREC	1-800-424-9300
TSCA Hotline	202-554-1404
CDC	404-452-4100 or 404-329-2888
National Response Center	1-800-424-8802
Pesticide Information Center	1-800-845-7633
EPA ERT Emergency	201-321-6660
RCRA Hotline	1-800-424-9346
Bureau of Explosives	202-835-9500

Other Phone Numbers:

Health and Safety Director	<u>B. North (303) 232-7093</u>
Regional Safety Officer	<u>Laurie M. Smith (913) 492-9218</u>
Project Manager	<u>Byron Kesner (505) 262-1505</u>
Site Safety and Health Officer	<u>Valda Terauds (505) 262-1505</u>

Site Resources:

Water Supply	<u>Potable water available</u>
Phone	<u>Available at site</u>
Radio	<u>Not needed</u>
Other	<u></u>

Directions to Hospital (Attach Map)	<u>St. Joseph Hospital, Keokuk, IA</u>
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Travel south on Main Street toward downtown Keokuk, approximately 1.2 miles to 14th Street. Turn left (west) on 14th Street. Proceed 2 blocks.

Hospital is at the corner of 14th Street and Exchange Street.

Sheller-Globe  
W.A. 833

F. PLAN APPROVAL

This site safety plan has been written for the exclusive use of Jacobs Engineering Group Inc., its employees and subcontractors. Jacobs claims no responsibility for its use by others. The plan is written for the specified site conditions, dates, and personnel and must be amended if these conditions change.

PLAN PREPARED BY: Byron Kesner Date: 8-15-88

APPROVED BY: Laurie M. Smith Date: 8-22-88  
Regional Safety Coordinator

Laurie M. Smith (Acting) Date: 8-22-88  
Health and Safety Manager

G. EMPLOYEE CERTIFICATION

By my signature, I certify that I have read, understand, and will abide by,  
the health and safety plan for the Sheller-Globe site.

<u>Printed Name</u>	<u>Signature</u>	<u>Company</u>	<u>Date</u>
Byron Kesner		JEG	
Valda Terauds		JEG	